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## LABOR

### LABOR EXPERTS EXAMINE CURRENT SUPPLEMENTARY PAY SYSTEM

Moscow SOTSIALISTICHESKIY TRUD in Russian No 5, May 83 pp 53-63

[Article by L. Kheyfets, sector chief at the Scientific Research Institute of Labor, and senior associate L. Sushkina: "Increasing the Role of Supplemental Wages As Incentives"]

[Text] Heightening the material interest of workers and employees in achieving high results for their labor is an important factor in successfully resolving the economic tasks of the current five-year plan. The November (1982) CPSU Central Committee Planum pointed out the necessity of creating economic and organizational conditions which would "stimulate quality, productive labor, initiative and entrepreneurship."<sup>1</sup> One such condition anticipates the more effective use of supplements to wage rates and salaries for combining occupations, increasing the amount of work done, occupational skill and high worker qualifications. Broad opportunities for using these progressive forms of stimulation were set by the CPSU Central Committee and USSR Council of Ministers decree of 12 July 1979 "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Improving Production Efficiency and Work Quality."

A study of current practice and a statistical analysis made by the Scientific Research Institute of Labor and its branches have shown that additions (supplements) to wage rates and salaries have basically been successful in their role as material incentives. At the same time, quite a few negative factors were revealed in the dissemination and use of these forms of encouragement.

Improvement in the practical application of all types of additional wages must be based on a number of common provisions characterizing their essence and functional purpose. It should be noted first of all that additional wages, as a reward for labor, raise the level of objectivity of wage differentiation for workers in a single category or the same position concerning their personal labor contributions. They are established for workers who are highly skilled, creating a material interest in continuous occupational skills growth and the display of high work standards.

Wage additions provide an opportunity to use positive features of piece-rate wages in time-rate wages, that is, to create a direct dependence between the

<sup>1</sup>"Materialy Plenuma Tsentral'nogo Komiteta KPSS. 22 noyabrya 1982 g." [Materials of the 22 November 1982 CPSU Central Committee Plenum], Moscow, Politizdat, 1982, p 9.



wages of a time-rate worker and the savings in live labor based on performance of work with the fewest personnel. The use of additions to wage rates and salaries is inseparably linked to the more effective use of labor resources. Given the critical demographic situation, the growing demands for manpower will be met primarily through the freeing of personnel at existing enterprises. At the same time, strengthening the stimulus role of the rate system and establishing a greater dependence between wage rate and actual labor contribution will unquestionably help to secure personnel at enterprises as well.

The broader use of wage supplements will also help improve labor rate-setting, inasmuch as the availability of progressive, technically substantiated labor expenditure norms is a necessary condition for their effective use. The introduction of this form of incentives for highly productive labor is also aimed at broadening enterprise independence and initiative under centralized leadership, as well as at heightening the personal responsibility of economic leaders for state plan fulfillment.

The basic function of wage supplements is to ensure the recording of individual labor differences resulting from the qualifications, educational level, intensiveness of labor and level of labor productivity achieved by workers. Based on the economic purpose of the supplements, they should be viewed as an independent element of wages, occupying an intermediate position between the rate system and bonus payments.

A bonus is generally paid for fulfilling or overfulfilling one or several indicators describing the labor of a worker or collective and generally paid periodically: once a month, once a quarter, and so on. But a supplement is established for relatively stable, high labor results achieved on the basis of improvement in skill or performance of work involving the combining of occupations.

As distinct from rates, supplements are not an obligatory or constant element of wages. An increase in the amount of a supplement depends primarily on growth in the individual labor productivity of a particular worker and in his contribution to collective results. The establishment of a supplement does not require approval by a qualifications commission, and supplements are not taken into account when setting piece-work rates.

But it is important to stress in this regard that a supplement must not be instituted "for all time." One for whom one is established is obligated to confirm, by daily labor, his right to receive it. If work indicators deteriorate, supplements can not only be lowered in amount, but can even be rescinded entirely under article 53 of the decree on perfecting the economic mechanism and other normative documents.

#### Stimuli to Combining Occupations and Positions

The most widespread of the progressive forms of incentives are additional payments to workers, engineering-technical personnel and employees for combining occupations and positions. This type of additional payment is one element in the Shchekino method and can be used either independently or in combination with measures to perfect labor organization and planning. The importance of

this form of incentives has increased as a result of the increase in the maximum amount of the supplemental wage to workers from 30 to 50 percent of their rate. It has received further development in connection with the issuance of the 4 December 1981 USSR Council of Ministers decree "On Procedures and Conditions for Combining Occupations (Positions)."

Additional payments for combining occupations, including performing jobs with the fewest personnel, have become a permanent element in wage organization in a majority of the branches. It does not follow from this, of course, that the question of extending and improving this system of incentives has already been resolved. We must popularize leading experience to achieve the universal use of additional payments to create interest in combining occupations (positions) and saving live labor on the basis of freeing personnel. There is much that is instructive in this regard at the "Azot" production association imeni V. I. Lenin in Novomoskovsk, the Tula Machinebuilding Plant imeni Ryabikov, the "Bashneftekhimzavody," "AvtoKRAZ" and "Moskovskiy elektrolampovyy zavod" associations, ships of the Sakhalin Steamship Line, and sovkhoses of the Animal Husbandry Main Administration of the USSR Ministry of Agriculture.

Shchekino experience in stimulating the combining of occupations is being used in industry at enterprises concentrating 56 percent of all production personnel. But this is by no means the limit. Let us assume that practically every enterprise has an opportunity to organize combined occupations based on additional payments for wage fund savings as a result of the freeing of workers for other jobs.

The greatest impact from using additional payments has been achieved at enterprises operating comprehensively under the Shchekino method. Thus, the "Khlorvinil" production association in Kalushskoye, which has used the Shchekino experience creatively, was able to raise labor productivity more than 1.5-fold during the 10th Five-Year Plan. The "Polimir" production association imeni 50th anniversary of the BSSR has made a substantial contribution to developing the Shchekino method. By making extensive use of the system of additional payments, it has created material interest among workers in introducing collective servicing of the entire technological process. Thanks to this, the collective carried out the 10th Five-Year Plan assignment in four years.

In recent years, additional payments for combining occupations and performing work with the fewest personnel have been disseminated most widely at enterprises and organizations in communications, public health, physical education, social security, housing, municipal and personal services. In these branches of the national economy, the use of additional payments for combining occupations is somewhat broader in scope than it is in industry, transport and trade. Unfortunately, the proportion of workers receiving additional payments is still low at enterprises and organizations of agriculture, construction, culture and public education. In our opinion, these branches also have reserves for combining occupations which could be stimulated through the use of appropriate additional payments.

In industry, additional payments to workers for combining occupations are most widespread in such branches as oil refining, ferrous metallurgy (especially ore mining and enrichment), electric power engineering and several others in which

the proportion of time-rate workers is comparatively high. According to our calculations, not less than 12 percent of the time-rate workers in industry receive additional payments for combining occupations.

This particular type of material stimulation of labor is least characteristic of coal, lumber, wood-processing, pulp-paper and light industry.

The stimulation of combined occupations (positions) is currently characteristic primarily of workers and employees. As concerns engineering-technical personnel, we should point out that they are inadequately covered by this type of material incentives. According to our calculations, which were made separately for each category of personnel, the proportion of engineering-technical workers receiving additional payments for combining positions is lower than the proportion of workers receiving similar additional payments in industry -- three to four times lower -- and more than five times lower in machinebuilding. The situation is similar in other branches as well. All this is to be explained in considerable measure by the features of rate-setting for the labor of engineering-technical workers. The absence of labor expenditure norms or use of consolidated normatives which offer no possibility of determining sufficiently precisely the work volume of an engineering-technical worker hinders the organization of combined positions. This applies in a lesser degree to the labor of employees, many of whom are performing relatively simple and often repetitive functions. The successes achieved in recent years in the field of rate-setting primarily for mental labor will permit, one can assume, a more substantiated determination in the near future of the work volume and the opportunities for combining positions among engineering-technical workers. Under these conditions, the role of additional payments on the salaries of engineering-technical workers in the system for stimulating their labor must increase.

As the results of surveys have shown, additional payments average from 22 rubles per person (in industry) to 30 rubles per person (in public education) per month. Additional payments are thus becoming quite a substantial addition to the wages of various categories of workers. However, the question of the amounts by which the additional payments are differentiated is not always resolved correctly. In industry, for example, engineering-technical workers have unjustifiably lower additional payments for combining occupations and performing work with the fewest personnel than do workers and employees. Thus, in machinebuilding and metalworking, the average amount of the wage supplements to engineering-technical workers is approximately five percent lower than for employees and 10 percent lower than for workers. It is generally engineering-technical workers who are not in the leading specialist categories who combine occupations. In the opinion of many leaders, no special delineation, in terms of wages, should be made for those engineering-technical workers who combine positions in these instances. However, in such situations we should avoid extremes and not set additional payments in amounts below the "threshold of perception" (which is 10-15 rubles, in our view), which could reduce to naught interest in combining positions and freeing surplus personnel.

Considerable work on disseminating the system of stimulating combined occupations (positions) is being done in a regional cross-section. According to data from the Belorussian branch of the Scientific Research Institute of Labor, a large number of workers are freed for other work each year in Belorussian



industry and, at the same time, the number of workers and employees for whom additional payments are being established is increasing (see Table).

Indicators	1978	1979	1980
1. number of workers freed, total	7,378	7,316	6,377
including:			
workers	7,107	7,040	6,116
engineering-technical personnel	210	213	212
2. wage fund savings obtained as a result of the freeing of workers, in 1,000 rubles	8,203.3	8,075.2	8,329.4
including that spent on additional payments, total	2,613.6	2,776.1	3,368.0
workers	2,443.7	2,634.8	2,946.4
engineering-technical personnel	34.9	74.2	130.9
3. number of workers receiving additional payments, total	17,902	25,461	31,143
including:			
workers	16,786	24,529	29,787
engineering-technical personnel	373	558	845

Much organizational work facilitated this. Commissions were created in the republic ministries consisting of chief specialists and administration chiefs under the leadership of the ministers or their deputies; their task -- coordinate activity on implementing measures ensuring fulfillment of the decree on perfecting the economic mechanism. Methods recommendations on using the new forms of material incentives were communicated to the subordinate departmental associations and enterprises. At the same time, conferences, meetings and seminars were held to publicize them; participating in them were association and enterprise leaders and specialists, both for the branch as a whole and for individual subbranches, and including associates from branch scientific research institutes, laboratories and bureaus.

Among the enterprises which have actively stimulated the combining of occupations is the Minsk Motor Vehicles Plant, where 694 people have combined occupations and received corresponding additional payments. As a result, 287 people were freed to work in new production sectors. At the "Komsomolka" garment association and "Progress" textile association in Minsk, 58 and 183 people, respectively, are receiving additional payments for combining occupations and performing work with fewer personnel. As a result, 17 and 108 people, respectively, have been freed for other work.

Practices at ferrous metallurgy plants, where additional payments are the most widespread form of material incentives, would be a positive example of the use of additional payments for combining occupations at UkSSR enterprises. According to data from the Ukrainian branch of the Scientific Research Institute for Labor, the proportion of workers combining occupations increased, by number for all enterprises of the UkSSR Ministry of Ferrous Metallurgy, from 14.9 to 28.4 percent from 1976 through 1981, that is, nearly doubled. Additional payments for combining occupations and performing work with fewer personnel are the most widespread form of material incentives at the Voroshilovgrad Pipe Plant imeni

Yakubovskiy. In 1981, the number of workers receiving supplemental pay for combining occupations was 462, or 24.1 percent of the total. Whereas additional payments for combining occupations often stimulate making up the shortage of workers in certain occupations in a number of branches, the actual freeing of workers is generally the basis for broadening the sphere of combining occupations at enterprises of UkSSR ferrous metallurgy.

This form of material incentives has also been widely used at enterprises in other union republics. Thus, about 300 workers were receiving additional payments for combining occupations at the Alma-Ata Cotton Combine in 1980. At the Dushanbe Baking Production Association, the number of workers receiving supplemental pay increased by 42 from 1978 to 1980. In 1981, additional payments for combining occupations were established for 235 persons at the Vladivostok Porcelain Production Association.

At the same time, a study of practical material stimulation of combining occupations, broadening service spheres and increasing work volume has shown that a number of ministries and production associations have been little concerned with these questions. For example, the number of enterprises adopting the system of additional payments for combining occupations actually decreased in 1981 as compared with 1980 in the USSR Ministry of Meat and Dairy Industry. Work on freeing workers and establishing additional payments for combining occupations has been unsatisfactory at enterprises of the Ministry of Building Materials Industry, Ministry of Food Industry and a number of other ministries of the Uzbek SSR.

Even before the decree on perfecting the economic mechanism was adopted, the press repeatedly posed the question of the reasons for the slow dissemination of the system of stimulating combining occupations. The universal use of so effective a form of material encouragement of highly productive labor was retarded by the absence of enterprise normatives on staff and stable wage fund plans, as well as by the inadequate attention paid by economic leaders to carrying out organizational-technical measures to free workers. One reason for the inadequate use of the rights regarding the use of additional payments for combining occupations (positions) is the fear that the wage fund will be reduced after they have been established for an enterprise. Certain enterprises and associations, in chemical industry in particular, have turned out to be in this situation.

There are examples of a formal approach to the use of additional payments. In individual instances, they have been set for a very limited amount of work in the combined occupation, without consideration of the actual worker load, and so on. Such additional payments lose their importance as incentives and are transformed into a hidden form of "hauling up" the wage levels for individual categories of workers. The insignificant amount of the supplemental pay is another cause of the delay in their broad use, inasmuch as it does not create interest in combining occupations and performing work with fewer personnel. Thus, the average amount of the supplemental pay for workers at the Irkutsk Garment Association was less than five percent of their wages in 1981. As concerns increasing the limits on additional payments to 50 percent, there must be strict accounting of the actual load on those who are combining occupations when this is done.



In the near future, we need to link the additional payments system more closely to the wage rates of workers with a brigade form of organizing and stimulating labor, to ensure a substantial broadening of the scope of combining occupations among both time-rate and piece-rate workers.

In our opinion, in the first instance, the additional payment must be established for those brigade members who are actually combining occupations. And if it is impossible to single out the personal contributions of the workers in terms of combining occupations, the additional payment must be included in the total brigade wage. In the second instance, the question of the possibility of using these additional payments in brigades consisting of piece-rate workers should be decided differently. The fact is that the piece-rate form of wages in and of itself stimulated performing work with fewer people (both when occupations are combined and when they are not) and ensures an increase in wages when output norms are overfulfilled. It would hardly be appropriate under these conditions to pay a brigade or its individual members additionally for combining occupations.

It is important to note one other feature of combining occupations within the framework of the brigade form of labor organization. Material encouragement for performing work with fewer personnel is more effective in brigades than for other forms of labor cooperation. As a rule, when a worker leaves a brigade, it becomes necessary to redistribute his duties among other members of the collective. The effort to carry out an assignment in full creates an interest in effective replacement of a worker who has left or performance of his work by others. The second way is the more feasible and ensures an increase in wages in accordance with the amount of additional work.

#### Use of Supplemental Pay for Professional Skill

A new form of material incentives -- supplemental pay to skilled workers employed at particularly responsible jobs for a high level of occupational skill -- has yet to receive adequate dissemination. Nonetheless, it should be noted that introduction of this form of material encouragement has become more active recently in tractor, agricultural, road-construction and municipal-services machinebuilding, garment, leather-fur, oil refining, shale, peat and petroleum extraction industry. The average amount of the additional payment to workers for occupational skill is generally 10-11 rubles. The proportion of those receiving this supplemental pay does not exceed one percent of the total number of time-rate workers. At the same time, the indicators vary substantially by individual branch and enterprise. The proportion of workers receiving supplemental pay is approximately four times higher at enterprises of light industry than at enterprises of ferrous metallurgy, building materials and food industry. The lowest percentage of time-rate workers by this particular form of incentives is at enterprises of chemical industry. This state of affairs in the branch deserves a negative evaluation, inasmuch as there are many time-rate workers at chemical enterprises for whom supplemental pay for professional skill could be of great importance as an incentive.

The considerable differences in scope of application and average amounts of supplemental pay for professional skill cannot be explained just by branch specifics in labor and wage organization. A large role is also played by

subjective factors such as level of ministry and enterprise work on introducing progressive forms of material incentives.

The practical use of supplemental pay to workers for high professional skill presupposes the resolution of a number of questions connected foremost with the necessity of determining the range of jobs and occupations to which they could be extended, with developing precise criteria and indicators for instituting supplemental pay and the mechanism for differentiating them, as well as the procedures for establishing and rescinding additional payments. According to the USSR State Committee for Labor and Social Questions and AUCCTU clarification of 25 December 1979, the criteria for evaluating the level of worker professional skill are high-quality labor results, systematic fulfillment of output norms and normed assignments, strict observance of technological and production discipline, and combining related operations and occupations.

The establishment of supplemental pay for professional skill must be connected to strict adherence to the conditions formulated in this clarification. It goes without saying that such conditions must be concretized to the maximum with consideration of production-facility and enterprise features. In our opinion, the following should be taken into account when resolving the question of indicators for the payment of supplemental wages: quality job performance over a certain period (no defects, release of output on first demand, work with a personal stamp, attainment of a high work-quality coefficient, and so forth); systematic attainment of higher labor indicators than the average indicators for workers in the same occupation; periodic performance of work in a higher category than one's own; operating especially complex, unique equipment; term of employment in a specialty; performance of related operations or combining occupations; tutelage, assistance to young workers. The following might be conditions for establishing supplemental pay for professional skill: quite high theoretical knowledge, practical experience in a specialty, observance of labor and production discipline, high responsibility for performance of work entrusted to one. When establishing supplemental pay for a worker in a given occupation, it is recommended that consideration be given to two or three indicators, with a quantitative measure being mandatory for each level of supplemental pay.

At the "Elektrostal'" plant imeni I. F. Tevosyan near Moscow, supplemental pay for professional skill was in experimental use long before the issuance of the decree on perfecting the economic mechanism. Regulations indicating the concrete indicators which must be attained for the establishment of a corresponding supplement were prepared for workers in each occupation. For machine tool operators, for example, these indicators are: meeting output norms for the month which are higher than the occupation average, performing work without defects for a certain period, mandatory training of young workers by helping them master good habits and leading work methods, mastering other machine-tool operate specialties.

Additional payments for professional skill were widespread at the Minsk Refrigerator Plant. The basic indicators for setting level-1 supplements for workers, which are four percent, are: mastering at least 70 percent of the operations in the brigade, work with a personal stamp; for level-2 supplements (eight percent) -- mastering all operations in the brigade and work with a personal stamp for at least one year; for level-3 supplements (12 percent) -- mastering at least

50 percent of all operations in the shop and work with a personal stamp for two years. For workers in auxiliary production the conditions for establishing a level-1 supplement are: mastering one related occupation or work on two types of machine tools, use of a personal stamp; second -- mastering two related occupations or work on three types of machine tools, work with a personal stamp for at least one year; third -- mastering three related occupations or work on four types of machine tools, work with a personal stamp for two consecutive years. Additional payments for professional skill are established for workers who have worked at the plant at least one year and are raised a maximum of once a year. Wage funds savings are the source for them.

At the Minsk Worsted Combine, annual, quarterly or monthly output and quality assignments are set for the establishment of particular levels of supplements for skill. In this regard, the assignments are calculated based on branch service zones, technically substantiated output norms and work time, excluding all vacations. The assignment for level two or level three is generally set with a 10 and 20 percent increase, respectively, in the output assignment for level one and a five- to 10-percent increase over the planned assignment for grade. At the same time, length of employment at the enterprise is also taken into account.

An analysis of the practical use of supplemental pay to workers for professional skill testifies to the fact that there are a number of shortcomings in the use of this particular form of material incentives. For example, at the Ussuri Machinebuilding Plant, supplements for professional skill have been converted into a means of holding onto people who are beginning to leave the enterprise because of an inadequate workload. Supplements are also used for this purpose at several furniture enterprises in the Far East. At the Makeyevka Metallurgical Plant, the procedure for establishing supplements is very similar to payments for long service, since their amount depends only on length of employment in a shop in a given occupation. In 1980, when there was no wage fund savings because the production plan was not carried out, the material incentives fund was used to pay supplements. In our opinion, this cannot be considered an intelligent approach. In fact, length of employment is by no means always an indicator of growth in professional skill. Among those workers who do not have the necessary term of employment, there is less interest in improving skills. A payment of supplements from the material incentives fund does not correspond to the functional purpose of this economic incentives source. In individual instances, compensating for a lower wage rate, given substantiated growth in the norm, that is, "drawing" wages up to the level which has evolved, is the primary and sometimes the sole purpose for which the supplements are earmarked. Reduced requirements for establishing supplements are often permitted. In this regard, they are converted into a form for regulating wage growth and lose their role as incentives.

Broadening the scope of use of supplements for professional skill is not an end in itself. Their primary purpose is to stimulate labor productivity growth and the resolution of the most complex technical questions on a basis of increased worker skill. Supplements for professional skill are instituted, according to the decree on perfecting the economic mechanism, for skilled workers employed at particularly responsible jobs and who have achieved the highest labor results



for their occupations. We can assume that if this demand is met precisely, there is no possibility that such payments will be converted into a mechanical addition to wages. A list of the jobs and occupations in which the use of supplements for professional skill is appropriate and necessary should be determined in the branches and at the production facilities as a function of the specific features of each enterprise and the specific tasks facing them. At the same time, it would be incorrect to broaden artificially the range of such jobs, to institute supplements without foundation, that is, for the performance of one's customary duties.

In order to improve the practical use of supplements for professional skill, we should answer definitively the question, long skirted silently in the economic literature, of whether they are suitable for piece-rate wages. In our opinion, it is generally appropriate to use them to encourage time-rate workers. Piece-rate wages, even without supplements, are by their economic nature quite a flexible tool for evaluating the professional skill of a worker.

As follows from point 54 of the decree on perfecting the economic mechanism, supplements for professional skill can also be instituted for the brigade form of labor organization and wages, inasmuch as any form of labor organization provides the highly skilled worker with an opportunity to systematically achieve higher indicators than the averages for workers in the same occupation. However, attention must be paid to the fact that brigade wages are often distributed using a labor-participation coefficient which also gives some consideration to differences in worker professional skill. In this instance, when wages are distributed using a labor-participation coefficient, we do not think consideration should be given to indicators characterizing professional skill, so as to eliminate the possibility of double payment for the exact same indicators.

With a view towards creating additional material interest among time-rate workers at basic and auxiliary production facilities in attaining the highest labor results, supplements for professional skill could, in our opinion, be instituted for workers who are already receiving additional payments for combining occupations and performing work with fewer personnel. The legitimacy of such an approach is based as follows. Combining occupations means organization of the labor process for two or several occupations. But the performance of work in a combined occupation is not, in and of itself, a characteristic of one's level of skill. Professional skill means a new quality in the worker himself, one acquired in the course of his labor activity and which is reflected in the attainment of the highest results, in a creative approach to one's work, and so on. Consequently, the attainment of a high level of professional skill is possible for any occupation, regardless of whether or not occupations are combined. At the same time, it should be noted that if additional payments are instituted for combining occupations under particular production conditions, the "mastering" indicator, and generally the performance of work in related occupations and operations as well, cannot be used as the basic indicator when establishing supplements for occupational skill.<sup>1</sup> In other words, two types of incentives cannot be used for the exact same work indicator.

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<sup>1</sup>For this indicator, see point 1 of the "Clarification of Procedures for Paying Wage Supplements to Skilled Workers in Particularly Important Jobs for High Professional Skill" (Approved by the USSR State Committee for Labor and Social Question and AUCCTU decree of 25 December 1979).

## Supplements for High Skill While Improving the Economic Mechanism

Broadening opportunities for using supplements to engineering-technical workers and employees for high skill is assuming particular importance. In accordance with the decree on perfecting the economic mechanism, their overall amount has been increased more than three-fold (from 0.3 to one percent of the wage fund). All management workers, including employees, have been granted an opportunity to obtain pay supplements. At the same time, the maximum amount of the supplement for designers and technologists, as the main conduits of scientific and technical progress at the enterprises, is raised from 30 to 50 percent of one's salary.

The data from surveys made by branches of the Scientific Research Institute for Labor testifies that this type of material incentives is becoming more widespread.

The practice of using supplements for high skill at the Vladivostok Porcelain Plant deserves a positive evaluation. The regulations developed there stipulate the criterion of high skill: higher or secondary special education for the position held; length of work in the specialty; quality performance of production assignments and attainment of high technical-economic indicators by the sector led. As compared with 1979, the number of engineering-technical workers and employees receiving corresponding supplements has risen more than 40 percent.

Unfortunately, in a number of instances, supplements are used basically to raise the wage level and improve ratios in the wages of workers in different position groups. Engineering-technical personnel pay supplements are often set for a certain position, but do not reflect an increase in the skill of a particular worker. At a majority of the enterprises surveyed, practically no use is made of the right to establish higher supplements for highly skilled designers and technologists (Alma-Ata Cotton Combine, Alma-Ata Fur Combine, Minsk Packing Plant, and others). There have been cases in which supplements for high skill have been established first of all not for foremen, but for shop chiefs and their deputies, for the chiefs of plant-management departments (Dushanbe's "Tadzhikgidroagregat" plant). At the same time, a more substantiated evaluation of the complexity and responsibility of the labor of supervisory and engineering-technical workers must be resolved foremost by improving the system for categorizing enterprises, shops and sectors when instituting new wage conditions. In order to avoid instances in which supplements for high skill are used primarily for a particular category of engineering-technical workers, we should institute in advance a procedure whereby a significant portion of the funds available at an enterprise for these purposes is directed first of all into material incentives for high skill to foremen and engineers in the various specialties.

A majority of the enterprises surveyed spend as before on supplemental payments, within the 0.3-percent wage fund limit. Only 12 of the 40 enterprises surveyed by the Belorussian branch of the Scientific Research Institute for Labor use additional payments for engineering-technical workers and employees using the one-percent wage fund limit now established for those payments.

In many cases, the supplement does not yield a sufficiently perceptible increase in wages. Thus, for example, the average monthly supplemental payment for high



skill to engineering-technical workers and employees at the Minsk Worsteds Combine was 13 rubles, and 10 and nine rubles, respectively, at the "Komsomolka" garment association and the "Progress" textile association. Such supplement amounts naturally so little to stimulate increasing labor efficiency and the personal contribution of the worker to production activity results for this category of worker. At individual enterprises, no supplemental payments at all were made for high skill during the survey period (Irkutsk Garment Association, Angara Electrical Engineering Plant and others). In a majority of instances, this was to be explained by the absence of a wage fund savings. The responsibility for this is borne foremost by those association (enterprise) leaders who must ensure the efficient expenditure of wage funds. Many workers are insufficiently informed about the procedure for using the supplements and have not had an opportunity to convince themselves of the effectiveness of using them.

The attainment of a wage fund savings in order to establish all types of supplements for workers, engineering-technical personnel and employees depends not only on the enterprises, but also on the ministries. Wage fund planning methods and practices often fail to create in the production collective the proper interest in using supplements, inasmuch as they do not ensure a direct dependence between wage fund amount, labor productivity and production volume, either when drawing up the plan or when carrying it out.

Another reason for the inadequate use of supplements is the low level of economic work by enterprises in the area of wage organization and the absence of the necessary ministry assistance in solving these problems. As a result, the use of progressive forms of material encouragement is accessible primarily to the large enterprises with substantial economic services.

The use of supplements and additional payments must be fully "reimbursible" and must ensure improved production efficiency and work quality. Under modern conditions, dissemination of progressive forms of stimulation presupposes the purposeful use of wage funds. We must first of all strengthen their influence on increasing labor contribution to the results of collective production activity. Increased labor productivity and an improved ratio between its growth rate and wage growth rates can and must be the foremost result of the use of supplements and additional payments.

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## LABOR

### CONSTRUCTION LABOR PRODUCTIVITY PROBLEMS HIGHLIGHTED

#### Snags With Net Output

Moscow EKONOMICHESKAYA GAZETA in Russian No 35, Aug 83 p 9

[Article by R. Pelyachik, chief of the labor economics department of the Scientific Research Institute for the Construction Process of UkSSR Gosstroy and candidate of economic sciences: "The Soundness of the Indicator: Experience in Planning Labor Productivity and Wages in Construction"]

[Text] Experience in applying the adjusted normative net output indicator (NUChP) in planning labor productivity and wages indicates the constructive influence this indicator is having on the performance of construction and installation organizations. The new indicator has intensified their interest in activating production capacities and projects on schedule. For example, last year almost all construction organizations in UkSSR using the NUChP achieved a growth of sales of the marketed product of construction over the previous year and a reduction of unfinished construction work.

Organizations belonging to the Combine "Zaporozhzhilstroy" of UkSSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] and the Trusts "Yugozapadtransstroy" and "Mostostroy No 1" of USSR Mintransstroy [Ministry of Transport Construction] put into operation all the principal production capacities and projects.

Most organizations fulfilled planning targets for the rise of labor productivity calculated in terms of the NUChP and did not have an overexpenditure of the wage fund.

As experience is showing, the new indicator reacts more responsively to the level of organization of production and work, to uniformity in the pace of operations and in the delivery of projects, and to adherence to the technology for performing operations. For example, it was enough for the Zaporozhye Housing Construction Combine of UkSSR Mintyazhstroy to fall behind last year in creating the amount of partial housing construction in 1983 called for by the standard for difficulties to arise in fulfilling assignments for the rise of labor productivity in the first half of this year. This is a lesson learned.

## Objectivity of the Initial Data

An analysis shows that the capabilities of the NUChP are not being fully utilized as yet, the effectiveness of its application is dropping because precise solutions have not been found for a number of problems. One of them is determining the NUChP for the year preceding the transition to the new indicator (the base year). This is the most time-consuming and responsible job in the stage of preparation of construction organizations for the transition to planning labor productivity in terms of the NUChP. And yet the result of that effort, alas, is very poor. Why?

The procedure in effect for determination of the NUChP in the base year affords the possibility of setting too low the actual level of output during that year in order to guarantee easier fulfillment of targets in subsequent years. It is extremely difficult to monitor the quality of this work, since not uncommonly it is performed in very short periods of time, that is, in haste, often in the absence of the full range of plans and estimates in which the NUChP is given separately or using estimates in which the NUChP is extracted "by our own efforts."

These circumstances give rise to the natural question: Is there a need to extract the NUChP from the estimated cost of work in the base year? Or is it possible to do without that time-consuming work? Now that construction organizations are preparing for transition to the new estimate norms and prices, the urgency of this issue is becoming more acute.

In our view, it is still possible to do without extracting the NUChP in the base year. In this case the preparatory work is made substantially easier, and construction organizations will have an opportunity to calculate the NUChP of the planning year in more detail; its level must immediately be taken into account in adoption of the plan for labor. The growth rates of labor productivity in terms of the NUChP and the number of workers are in this case taken the same as they are in calculation of the plan for labor in terms of estimated cost. The output for the base year in terms of the NUChP is also determined on the basis of these figures.

Aside from assignment for the growth of output calculated in terms of the NUChP, construction organizations are also assigned a target calculated in terms of estimated cost. In most cases the target for output in terms of the NUChP proves to be lower than the target in terms of estimated cost.

The main reason for this apparent paradox is that output in terms of the NUChP is calculated after the construction organization has already been given the output figure calculated on the basis of the estimated cost. Under those conditions output in terms of the NUChP is determined by dividing the volume of the NUChP which the construction organization itself has calculated for the planned number of workers, which was established on the basis of the planning target for the rise of labor productivity in terms of estimated cost.

This computational procedure encourages artificial reduction of the level of the NUChP in the plan, since it guarantees not only a reduction of the target

for the growth of output in terms of the NUCHP, but also a hiking up of the planned standard wage per ruble of the NUCHP.

There is no question that this kind of practice is detracting from the effectiveness of the NUCHP and needs to be changed. In our view, the plan for labor should be assigned to construction organizations using the new indicator only in terms of NUCHP. Until all construction organizations make the conversion to the NUCHP, labor productivity ought to be defined as the average weighted (for the number of workers) index of the outlined growth of output in terms of the NUCHP—for those organizations which have made the conversion, and in terms of estimated cost for those which have not.

#### How to Strengthen Control

Quite a few of the unresolved problems related to use of the NUCHP have been engendered by the absence of clear-cut instructions with respect to recording that indicator and monitoring the correctness of its extraction. At the same time the urgency of this problem is especially great since the NUCHP is not being recorded or monitored by the client and is a purely internal indicator of the performance of construction organizations. This means that responsibility for the correctness of the extraction and recording of the NUCHP lies entirely on construction organizations, and it is their superior organizations and bank institutions which must exercise oversight concerning these matters.

A mandatory condition of this kind of oversight is that the amount of work done be recorded in terms of NUCHP and also in terms of estimated cost for projects on a cumulative basis from the beginning of construction and for the reporting year and that they be set against the volume of work in terms of NUCHP in the estimate and in the annual plan. This kind of system of monthly recordkeeping has been introduced, for example, at the Combine "Zaporozhzhilstroy" of UkSSR Mintyazhstroy. It makes it easier to monitor adherence to the limits of NUCHP in the estimate, the soundness of the computation of this indicator in the plan, the correctness of its determination according to work actually performed. Should there be a sizable discrepancy between indicators on performance of work in terms of estimated cost and in terms of NUCHP, an analysis is made of the causes giving rise to this discrepancy.

One thing that makes it difficult to monitor the correctness of extraction of the NUCHP is inclusion in it of costs of earth moving if this is done with the vehicles of the construction organizations. In conformity with instructions in effect of the USSR Central Statistical Administration, truck drivers are not included in the work force taken into account in determining output. Consequently, the volume of NUCHP extracted from the estimated cost of work in transporting earth would seem to be formed without expenditures of labor.

It is equally important to take into account the fact that construction organizations in many cases use not only their own vehicles, but also those of others, and it is extremely difficult to distribute the amount carried between them. Under these conditions, as experience shows, monitoring the realism of this component of the NUCHP gets quite slack.



A psychological reorientation is also necessary to improve the effectiveness of the NUChP. This is going slowly at present. Superior organizations and local soviet authorities are continuing to evaluate the performance of construction organizations according to fulfillment of the output indicator calculated in the traditional way.

Nor is it conducive to psychological reorientation for the two output indicators to be planned not only by construction organizations but also by their subdivisions (administrations, sections and brigades). This situation imposes a definite disjointedness between economic and administrative levers of management and financial and nonfinancial incentive measures of construction organizations. All of this is complicating the procedure for planning, recording and analyzing figures on labor and wages and is creating an adverse attitude toward the NUChP as an indicator and frequently even opposition to its introduction.

The range of questions which arise in the process of using the NUChP is unquestionably broader than those taken up in this article, and increasing the output from the new indicator and intensifying the interest of construction organizations in its application depend in large part on their being solved with the greatest speed.

#### Net Output Perpetuating Distortions

Moscow PLANOVYE KHOZYAYSTVO in Russian No 9, Sep 83 pp 107-111

[Article by A. Shevelev, candidate of economic sciences: "On the Question of Measuring Labor Productivity in Construction"]

[Text] The growing scale of social production, the need for its intensification, and the greater complexity of economic interrelations--all of this is advancing new requirements on management of the economy and on planning above all. The system of planning indicators which take into account the specific nature of sectors and reflect most fully the growth of production, the rise of production efficiency, the productivity of labor, product quality, and conservation of worktime and various resources has particular importance. In the current 5-year period a new indicator--adjusted normative net output (NUChP)--has begun to be applied in the practice of planning labor productivity by construction and installation organizations.

The decree of the CPSU Central Committee and USSR Council of Ministers on improving the economic mechanism provided that the results of fulfillment of assignments for activation of capacities and projects, for the volume of the marketed output of construction, for the rise of labor productivity and for the growth of profit are to be the points of departure in evaluating the performance of construction and installation organizations. Beginning in 1981 profit is planned in accordance with the plan for delivery of the marketed output of construction and bank credit so as to take into account the credit financing of the current costs of the construction process.



The uneven distribution of the activation of capacities and the delivery of the marketed output of construction among the quarters of the year has an adverse effect on formation of profit, economic incentive funds and cost-accounting (khozraschet) relations. Since 1969, while the estimated cost of construction has remained unchanged, there have been increases in the wholesale prices of materials and fuel and transportation rates, the amount of work done in rural areas has increased, as has the amount of work done on reconstruction of existing enterprises. As a result construction organizations have sizable costs which are not compensated in the estimates.

The prime cost of construction and installation work has risen considerably at this point; many additional costs exceed the estimate prices, which reflect the conditions and cost level of the construction process in 1969 (when these prices were introduced), which is reducing the already low level of profitability of organizations operating as construction contractors. In Mintransstroy, for example, by 1982 the profitability of construction and installation work proved to be lower than the level of planned accumulation and amounted to 4.7 percent, whereas for the ministry as a whole it was supposed to reach at least 15 percent. Experience in determining the estimated cost of work items based on use of stable prices instead of prices in effect and future prices, resulted in a reduction of profit in that ministry (because the wholesale prices of materials and fabrications were higher than the estimate prices) by 60-80 million rubles a year. That is why a number of construction ministries are proposing that the estimated cost of work include a standard rate of planned accumulation large enough to allow them to make the transition to full cost accounting.

The rise of the prime cost of work items and the drop of profitability are a consequence of the lag of the growth rates of labor productivity behind wages. For the period 1965-1979 the average wage of construction workers rose 87 percent in the sector as a whole, while labor productivity rose 72 percent.

In our view, in addition to raising the level of planned accumulation, it is advisable to divide it up among the types of construction--industrial, housing, rural, standard, one-of-a-kind, and so on. In a number of socialist countries, for example, they are differentiated even by types of construction work items. To a great degree this measure aids the transition of construction organizations to the pay-as-you-go principle. Glavmosinzhstroy [Main Administration for Construction of Engineering Installations in the City of Moscow], Glavzapstroy [Main Regional Administration for Construction in the Western Regions of RSFSR] (Leningrad), LISSR Minstroy [Ministry of Construction], BSSR Minpromstroy [Ministry of Industrial Construction], etc., are operating on pay-as-you-go principles at the present time. Their experience has been convincing as to the urgency of increasing the share of net income in the price of the construction product so that the price reflects the socially necessary expenditures of labor to a greater extent and covers expanded reproduction.

Increasing the rate of planned accumulation lies in the jurisdiction of USSR Goskomtsen [State Committee for Prices] and USSR Gosstroy. But this is a

very complicated problem involving the need to change proportions between accumulation and consumption in an important sector of the economy. The new estimate prices being introduced in construction as of 1 January 1984 envisage planned accumulation at 8 percent instead of the 6 percent established in the estimate prices now in effect. But this rate in our view is also inadequate for the transition to full cost accounting. In order to come closer to solving this problem we need to enhance the responsibility of construction organizations for fulfillment of planning targets, ruble control over fulfillment of plans for the volume of production and the prime cost of work items, and raising the level of the planned profitability of construction organizations.

The reduction of profit and profitability also resulted from the introduction as of 1 January 1976 of the coefficient for reduction of the estimated cost of construction and installation work and the substantial decrease in their growth while fixed productive capital and the machinery-labor ratio were rising. Until the revision of estimate prices as of 1 January 1984 certain construction contractors consider it necessary that they be reimbursed the higher costs on the basis of a corrective coefficient to be applied to the estimated cost. Funds are being allocated from the budget to a number of construction ministries for compensation of costs not taken into account in the estimates.

The issues of the realistic rate of profit and also the source from which profit is to be formed await their resolution in connection with the problem of applying adjusted normative net output. It should be borne in mind that profit, as one of the indicators of the performance of construction organizations, is not free of the impact of factors which do not depend on them, above all the materials intensiveness of work items. For that reason it is important to eliminate the influence of such factors so as to discover that portion of profit which has been created by the work of the respective collective. The trouble is that so far the question has not yet been cleared up of whether the planned accumulation is to include the saving achieved by cutting costs under the heading "Materials" as against their estimated cost (in comparable prices) when the volume of the calculated (actual) adjusted net output is being determined, or whether the amount of overexpenditure in case of a higher cost under this heading is to be included from that volume. NIIMosstroy [Scientific Research Institute of the Main Order of Lenin Administration for Housing and Public Works Construction in the City of Moscow], for example, in the method it worked out for determining calculated adjusted net output, included in planned accumulation the saving achieved by reducing the costs of materials, which in our opinion is unjustified. After all, material costs are not included in net output, and consequently a saving or overexpenditure of the past labor contained in them, without influencing the volume of net output, is reflected in the results of fulfillment of the financial plan: the prime cost of output (work items), profit and profitability.

Duplication of these results using the NUCHP does not strengthen the motivation of construction people to make thrifty use of physical resources and at the same time diminishes the accuracy of the unit by which live labor is

measured. As a rule this saving is a consequence not of expenditures of labor, but of a change in prices of materials and conditions for their transport. And including it in the volume of adjusted net output (or omitting an overexpenditure) could result in a distortion of the indicator of the profitability of live labor and of use of the wage fund.

In this connection adjusted net output becomes more dependent upon the materials intensiveness of work items, and construction organizations with a differing level of material costs will be put in unequal conditions. In addition, the setting of quotas for live labor and the planning of its productivity are more refined than the setting of standard allowances and planning related to material costs.

Thus inclusion in the volume of adjusted net output of elements of profit that depend on the level of materials intensiveness reduces the accuracy of the unit used for measurement of live labor and detracts from the effectiveness of monitoring the latter's productivity. And the level of production will turn out to be directly proportional to the level of materials intensiveness of work items in the respective construction organization. Balance-sheet profit, along with other indicators of the efficiency of the construction process (prime cost of construction and installation work, profitability, and so on) will reflect all types of conservation, including the saving of past labor.

The influence of materials intensiveness on the labor productivity indicator still cannot be judged from the relative share of outlays for materials in the estimated cost of construction and installation work. For instance, in 1981 the share of outlays for materials in the cost of work items was 53.6 percent for USSR Minpromstroy and 57.4 percent for Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises], while the output per worker was 7,888 and 20,827 rubles, respectively.

This influence can be seen far more clearly in an analysis of the components of the estimated cost. Calculations have shown that while costs of materials have risen (in the ministry as a whole) 60 percent, outlays for wages rose 22 percent, the costs of operating machines 34 percent, overhead 53 percent, profit increased 2.3-fold, and output as a whole 53 percent. Consequently, the rise in the costs of materials is accompanied by an absolute growth of output, of funds for wages (and correspondingly of the average monthly wage per worker), of overhead and of profit.

An important question is selection of the base for determining normative profit (planned accumulation) in construction. In the LiSSR Ministroy this accumulation is included in the NUChP in the same way as it was included in the estimated cost, i.e., at 6 percent of the sum total of estimated direct costs and overhead. The influence of materials intensiveness was thereby transferred to this indicator. But even according to the procedure for charging planned accumulation (in the proportion of 45 percent of the sum total of the base wage and the costs of operation of construction machines and machinery) established by the method of USSR Gosstroy, the profit indicator is not extricated from the influence of structural shifts and from the materials intensiveness of the work items performed.



Moreover, for those types of work items on which the cost of materials is negligible or is not included in the estimate unit price adjusted normative net output, which takes into account overhead and planned accumulation, considerably exceeds the estimate unit price: when the estimated cost is determined, planned accumulation is 6 percent, but when the NUChP is calculated, it is 45 percent of almost the same amount of costs. For instance, in 24 collections of adjusted net output norms which apply to the work of repairing buildings and installations in LaSSR (general construction work), encompassing about 1,600 different work items, 50.7 percent of the norms exceeded in their absolute level the corresponding estimate unit prices. This is an absurd situation, since in its economic content the NUChP is a part of the estimated cost (not the other way about). Thus even when planning is done in terms of this indicator there are profitable and unprofitable work items by means of which it is possible to regulate to some degree the fulfillment of the plan for their total volume. Machinery-intensive work items (for example, earthmoving by machine) in which there is a high share of depreciation in the costs have become the most profitable.

It would seem that the wage should be the sole basis for determining planned accumulation, and that not the base wage, as in the installation of equipment, but the entire wage, which is the practice in a number of socialist countries. Inclusion of depreciation in this base results in a distortion of the indicator of expenditures of live labor.

The shortcomings of the NUChP as an indicator have resulted largely from inclusion of depreciation in it, from setting the rate of overhead as a function of the sum total of direct outlays for wages and the costs of operation of construction machines, which carries the influence of the factor of materials intensiveness over to this indicator. It could be improved in the direction of a further "cleansing" of the influence of material costs, i.e., expenditures of past labor. This applies above all to expenditures under the heading "Operation of Construction Machines," which are included in this indicator. For example, the cost of earthmoving per 100 cubic meters includes 5.82 rubles of wages for the machine operator and 12.2 rubles of the costs of depreciation of the excavator and for fuel and lubricants. The share of these costs varies within considerable limits when different types of work items are performed; the payment for labor out of overhead, which is determined as a function of direct costs, also gives preference to materials-intensive work items.

Labor productivity evaluated in terms of NUChP differs considerably from the standard expenditures of live labor and of its quantity and quality, depending on which individual work item is being performed. For example, the output per man-day of work in assembling reinforced-concrete fabrications in terms of the NUChP is 2.5-fold higher than for plastering walls, though the wage rates for these work items differ by only 6 percent. Consequently, use of the NUChP as an indicator distorts the evaluation of the productivity of live labor at the lower level of construction work.

For instance, according to the figures of Trust No 10 of Glavsevkavstroy [Main Construction Administration in the Regions of the Northern Caucasus] of

USSR Mintyazhstroy, the volume of work done in a year by a brigade of assemblers with a labor intensiveness of 4,289 man-days was 325,800 rubles when evaluated in terms of estimated cost and 71,400 in terms of the NUCHP, that of plasterers (with a labor intensiveness of 4,150 man-days) was 30,500 and 25,800 rubles, respectively. Thus when the outlays of labor by the brigades were approximately the same, the volume of assembly work was nearly 11-fold greater than that of finishing work when the estimate was made in terms of estimated cost and approximately threefold greater when it was made in terms of the NUCHP.

Some economists give preference to the adjusted normative net output indicator [NUChP] over normative net output [NChP], since in the context of scientific-technical progress the share of wages in the NUCHP decreases, and consequently the volume of NChP decreases, which, in their opinion, arouses a desire on the part of builders to increase it by the use of manual labor. The share of depreciation in the NUCHP, which increases under these conditions, would seem, then, to offset the loss in the volume of work because of the reduced share of wages.

In our view this conclusion is unsound. First of all, when labor productivity rises, the cost per unit of the product drops, but the volume of output in physical terms increases, which means that there is an increase in its total cost and the volume of the NChP (the cost of 5 products at a unit price of 1 ruble is 5 rubles, but 50 products at 20 kopecks cost 10 rubles). Second, the net output norms are stable over the period that the estimate prices are in effect, and although as a result of technical progress the share of wages and consequently the volume of net output per unit work decrease, still the volume of production is evaluated in terms of stable net output norms, and the difference that comes about (saving) is credited to the construction organization. Third, the reduction in the share of wages is less substantial than the rise of labor productivity.

For instance, the output per shift of an excavator operator, evaluated in terms of the NUCHP, is 4.7-fold greater than that of a laborer with a shovel, but the difference in the wage rate is only 1.56-fold. In spite of the fact that during the shift the machine operator does a 25-fold larger amount of work in excavating earth than the laborer (and consequently creates a NChP of greater value and size). That is why the drop in the share of wages occurring per unit output is compensated by an increase in the other part of net output--profit. It therefore follows that there is no need to preserve the volume of the NUCHP, artificially adding to it a portion of past labor in the form of depreciation. A more accurate indicator is needed. Discussion has become lively in this connection, especially concerning the normative net output indicator.

But we should bear in mind that it is more difficult to calculate the NChP than the NUCHP given the existing system for estimate price formation. The estimate unit prices identify separately only the base wage of construction workers and machine operators, which we refer to as the technological wage. Other direct and indirect labor costs in construction are proportional to outlays for the technological wage. Moreover, the pay of administrative and



managerial personnel in the overhead is determined as a function of the technological level, since there is no direct proportionality between the reduction in the specific number of workers and engineering and technical personnel per unit of the volume of work: the latter drops far more slowly or even does not decrease at all.

It is sometimes felt that the size of depreciation included in the new indicator encourages introduction of highly productive machines and machinery and their better utilization. In our opinion this point of view is unsubstantiated. First, more than 76 percent of construction equipment is possessed by machinery trusts (administrations) which are economically divorced from construction organizations. Second, depreciation is charged not on the basis of the capacity of the machine, but on the basis of its cost, which is not always proportional to the former. In this case the proposed procedure would stimulate first of all the use of more expensive machines: for example, imported machines, which require high depreciation. Third, the technology of the work process in which there is oversaturation of equipment is uneconomical; it is important to choose the optimum scheme for mechanizing operations.

The disproportionality of the saturation of construction sites with up-to-date equipment and its actual output makes it necessary to analyze the correspondence between the volume and composition of work and the makeup and structure of the pool of machines, to clarify the orientation of the course of technical policy in construction. Consequently, it is not possible to stimulate the use of more powerful equipment by increasing the share of depreciation in the NUCHP without taking into account the specific conditions of the construction process.

The principal function of the new indicator is objective measurement of the productivity of live labor. That is why A. Deminoy is right in his view that "we should not attribute to the new indicator functions which it is not designed to perform. To be specific, we cannot say that introduction of the indicator of normative net output into planning completely settles the question of incentives for introduction of the advances of scientific-technical progress, though it does contribute to speeding up the assimilation of new technology...."\*

This conclusion would also seem to be of interest: use of the NUCHP necessitates revision of cost-accounting relations between construction organizations operating as general contractors and machinery trusts (administrations). Improvement of the composition and use of construction machines and machinery does not by and large depend on the use of this indicator. But since it includes the cost of materials and fabrications, unlike the estimated cost, there has been a substantial increase in the share of costs of operating construction machines, and consequently of the amount of work which trusts operating as general contractors turn over to machinery trusts (administrations). For example, in 1981 the Tsesis Construction Trust of the LaSSR Ministry turned over to machinery administrations 34 percent of the entire volume of work calculated with the indicator NUCHP, whereas when evaluation was done in

\* PLANOVOYE KHOZYAYSTVO, No 8, 1980, p 30.

terms of estimated cost the share of work turned over to them was only 7.3 percent.

In essence the construction organization operating as general contractor, regardless of the intensity of work or the amount of idle time of the crane operator, bulldozer operator or other workers, turns over a part of the volume of its work items evaluated in terms of the NUCHP to the machinery trusts (administrations). As a result the machine operators are taking from the construction workers a disproportionately large amount of work, which not uncommonly increases their output determined in terms of NUCHP 3-3.5-fold as compared to the output of general construction organizations.

The disproportionality in the amount of NUCHP turned over to machinery administrations results from the fact that when settlement is made with the builders the latter as a rule determine those amounts in planned accounting prices, which are higher than estimate prices. Calculation of profit (planned accumulation) in percentages of total outlays for base wages and for operation of machines also is conducive to uneven distribution of the volume of work done and expenditures of labor between construction workers and machine operators. According to the figures of Trust No 10 of Glavsevkavstroy, mentioned above, 30 percent of its profit is included in the volume of NUCHP of machinery subdivisions, while the specific labor intensiveness of their work items is 12 percent. Settlement with these subdivisions often does not correspond to the expenditures of their labor; they are being put in a privileged position and are not motivated to improve the utilization of equipment. At the same time, when the indicator NUCHP is used, organizations operating as general contractors must furnish the machinery trusts (administrations) work to be done and a fuller load on machines and machinery. Certain officials of LiSSR Ministroy propose omission from the transferred portion of work items estimated in terms of the NUCHP of the volume of work not directly related to the operation of machines and that the cost of operation of rented machinery not be included in the NUCHP.

The values of factors in the growth of labor productivity measured in terms of the NUCHP and estimated cost do not coincide. In connection with the fact that the influence of a number of factors on the volume of production in terms of NUCHP disappears or falls off substantially, this has to be taken into account in planning labor productivity. External factors independent of the performance of construction organizations and materials intensiveness above all have the greatest influence on lowering the level of labor productivity.

In application of the NUCHP indicator in the structure of the actual prime cost of work items a tendency is being pursued to reduce their materials intensiveness, which brings about a reduction in the volume of work done in terms of estimated cost. For instance, in the LiSSR Ministroy in the first half of 1981 the relative share of costs under the heading "materials" in the prime cost of work items was 51.7 percent as against 54 percent in the first half of 1980, i.e., before the new indicator was introduced. At the same time the costs of base wages and operation of construction machines and machinery increased from 12.6 to 12.7 percent and from 8 to 8.9 percent,

respectively. The constructive influence of the NUChP on reduction of materials intensiveness is especially valuable in the light of the decree of the CPSU Central Committee and USSR Council of Ministers dated 30 June 1981 and entitled "On Intensification of the Effort To Conserve and Make Optimum Use of Raw Materials, Fuel and Energy, and Other Physical Resources."

The slackening of attention in the mid-sixties to the indicator of the prime cost of construction and installation work was conducive to a rise of materials intensiveness. After all, in the prime cost of construction material costs have the dominant influence. That is why the NUChP is one of the economic instruments for reduction of the materials intensiveness of construction and for use of more progressive materials and fabrications, which was held back when the gross indicator was used.

In addition to economic and cost-accounting instruments, financial instruments for influencing the indicators of construction organizations also play a vigorous role in improving the economic mechanism for management of capital construction. Although the principal sphere of application of the NUChP is planning labor productivity and the wage fund, this indicator is having a constructive effect toward reduction of the volume of unfinished construction work. This kind of economic effect can also be reinforced by a financial pressure.

But the differing rates of profitability that have persisted with the NUChP is making it more complicated to plan labor productivity and the wage fund. That is why experiments must be continued to improve evaluation of labor productivity in construction.

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## LABOR

### RELATIONSHIP BETWEEN PRODUCTIVITY GROWTH, WAGES EXAMINED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 10, Oct 83 pp 87-92

[Article by D. Karpukhin, professor and doctor of economic sciences: "The Relationship Between Growth in Labor Productivity and Wages"]

[Text] One of the objective requirements for planned, proportional development of the national economy is insuring that labor productivity grows faster than wages. The Communist Party and Soviet Government have always devoted special attention to establishing and maintaining this relationship. The August 1924 decree of the Plenum of the Central Committee of the Russian Communist Party (Bolshevik) entitled "Wages Policy" observed that "the development of industry, the might of the state, the possibility of prolonged growth in wages themselves, and reinforcing the current level of wages demand an inverse relationship -- greater growth in gross output per participant in production. Growth in labor productivity must exceed growth in wages. Only on this condition will the material base be established and resources accumulated to: insure growth in wages; expand production, which requires an increase in working capital; replace of wornout and outdated equipment; meeting ever-growing cultural needs; educate and indoctrinate the growing generation and, govern and defend the state."<sup>1</sup>

In our day too, in the period of mature socialism, the problem of the essential proportionality between these economic indicators has not declined in significance at all. Indeed, it is even more timely in view of the scope of economic development and the tasks of intensifying public production and carrying out our majestic social program. The document "Basic Directions of Economic and Social Development of the USSR for 1981-1985 and the Period until 1990" provides: "Insure faster growth in labor productivity than growth in labor productivity and growth in wages in sectors of the national economy and at associations and enterprises."<sup>2</sup>

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<sup>1</sup>"Resheniya partii i pravitel'stva po khozyaystvennym voprosam" [Decisions of the Party and Government on Economic Issues], Vol 1, Moscow, Politizdat, 1967, pp 435-436.

<sup>2</sup>"Materialy XXVI s"yezda KPSS" [Materials of the 26th CPSU Congress], Moscow, Politizdat, 1982, p 139.



In the 10th Five-Year Plan, however, the ratio established in the plan between growth in labor productivity and the rise in wages was violated. In industry, for example, the growth in average wages per one percent growth in labor productivity was 0.69 percent instead of 0.5 percent as calculated in the five-year plan, not counting sums appropriated for increasing wages. Counting these sums it was 0.84 percent. In certain sectors (coal industry and meat and dairy industry) the level of labor productivity declined during these five years while wages rose. Wages rose faster than labor productivity in ferrous metallurgy, the petroleum, timber and paper, and food industries, and fishing. The two indicators rose at roughly the same rate at enterprises of the building materials industry. In machine building the growth rate of labor productivity was greater than growth in wages, but it was uneven by sectors.

The situation did not change in the first years of the 11th Five-Year Plan. In 1981 the average wages of workers and employees in industry rose 2.3 percent while labor productivity grew 2.7 percent; in other words, growth in wages was 0.85 percent of each one percent of growth in labor productivity instead of 0.64 percent according to the plan. In 1982 labor productivity in industry increased 2.1 percent, while the wages of workers and employees (considering additional capital appropriated in a number of sectors) rose 3.5 percent. Therefore, the growth in wages was 1.7 percent for each percentage point of growth in labor productivity.

Thus, both in industry as a whole and in many of its sectors the actual ratio between the growth rates of labor productivity and wages diverges considerably from the planned figure. This has a negative effect on the entire system of national economic proportions.

In his article "The Doctrine of Karl Marx and Some Questions of Building Socialism in the USSR," General Secretary of the CPSU Central Committee Yu. V. Andropov wrote as follows: "Thus, it becomes perfectly clear that we cannot permit violation of the objective economic requirement that labor productivity grow faster. Unless closely tied to this crucial factor a rise in wages, which at first produces an outwardly favorable impression, ultimately and inevitably has a negative impact on all economic life. Specifically, it generates wants that cannot be fully satisfied at the given level of production and prevents us from eliminating scarcities with all their ugly consequences that arouse the just indignation of the working people."

In practice, the question of the necessity of establishing and maintaining a ratio between the growth rates of labor productivity and average wages arises constantly and is not always resolved correctly. Many planning and management personnel believe that the principle of faster growth in labor

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<sup>1</sup>Yu. V. Andropov, "Ucheniye Karla Marksa i nekotoryye voprosy sotsialisticheskogo stroitel'stvo v SSSR" [The Doctrine of Karl Marx and Some Questions of Building Socialism in the USSR], Moscow, Politizdat, 1983, p. 15.

productivity is being upheld if it grows faster than average wages. But this is not enough for observance of the established ratio. What must be insured is not simply faster growth, but faster to the degree envisioned in the plan. This is because the ratio between the growth rates of labor productivity and wages is closely linked to the basic proportions that characterize the rate and scale of socialist reproduction: between social production and personal consumption, savings and consumption in national income, production of means of production and production of consumption objects, and so on.

The main reason for the situation that has developed is a decline in the growth rate of labor productivity. In the 10th Five-Year Plan the average annual growth rate of labor productivity in industry declined to 3.2 percent in comparison with six percent in the 9th Five-Year Plan. In the 11th Five-Year Plan higher growth rates for labor productivity in industry were envisioned than the rates actually achieved in the 10th Five-Year Plan. The results of the first two years of the current five-year plan testify that we have not yet been able to overcome the trend toward slowdown in growth of labor productivity. As noted at the November 1982 Plenum of the CPSU Central Committee, the main indicator of economic efficiency -- labor productivity -- is growing at a rate which cannot satisfy us. In 1981-1982 it was 4.8 percent in industry, instead of 6.3 percent as envisioned in the annual plans.

In the 10th Five-Year Plan and the first two years of the 11th Five-Year Plan average wages in industry increased at the rate envisioned in the plan, and even somewhat faster. At the same time these rates were lower than those of earlier years. Whereas the average annual increase in average wages of industrial production personnel in 1966-1970 was five percent, in 1971-1975 it was four percent, in 1976-1980 -- 2.7 percent, in 1981 -- 2.3 percent, and in 1982 -- 3.5 percent. This increase occurred progressively in line with growth in labor productivity and the rise in qualifications (so-called natural growth), change in the sectorial and territorial structure of production, and as a result of centralized measures carried out in certain sectors of industry and for certain categories of working people.

The more rapid increase in the volume of production of group A sectors compared to group B sectors had a certain influence on raising wages and increasing the proportion of wages relative to growth in labor productivity. The point is that the level of wages in the sectors of heavy industry is higher than in light and food industry, but the output in cost terms per worker in many of them, especially machine building, is lower. Roughly the same situation is taking shape as the result of moving industrial production, above all its extraction sectors, to the northern and eastern regions where regional wage coefficients are in effect and the supplements for time and service are higher than in other regions (which cannot be said for the production of output by each working person).

In general the discrepancy between growth in wages and rise in labor productivity usually occurs because plan assignments for growth in labor productivity are adjusted downward without adequate grounds, for the purpose of

reducing the lag that has occurred. Ministries and industrial associations often revise plan assignments in order to insure fulfillment of the plan for the sector or subsector or at least to come closer to fulfillment. In this way they make life easier for those who are doing a poor job and increase the burden on those who are working hard.

In our view, we must reject the long-operative practice of setting plan assignments for enterprise growth in labor productivity in sharply rising figures by years of the five-year plan and quarters of the year. For example, in the 10th Five-Year Plan labor productivity in industry was to be raised by an average of 3.4 percent a year, but for 1980 the figure was 7.2. In the 11th Five-Year Plan, there is also growth, although not as much -- from 3.6 percent in 1981 to 5.6 percent in 1985. The planning practice for this indicator is similar within the year. For example, in 1981 in industry the growth rate of labor productivity in the second half of the year was set twice as high as in the first. This kind of approach does not stimulate use of existing reserves for accelerating growth in labor productivity in the initial period and during the first six months creates the appearance of well-being and possible bonuses, but later leads to last minute rushing and is the reason that a significant number of enterprises do not fulfill their annual plans (if they have not been adjusted).

The formalistic approach to working out plans for growth in labor productivity based on the level achieved and without substantiation and thorough consideration of the set of factors that determine this growth is still practiced and must be eliminated. A number of factors envisioned by the methodological instructions of USSR Gosplan are not taken into account in substantiating plans, and the amount of relative labor savings for some of them is determined inaccurately. In their calculations ministries and departments often deliberately understate the effect of certain factors in order to have an opportunity to overfulfill the plan. Frequently the factors envisioned in the plan and reflected in the report do not coincide, and the results of their influence are directly opposite to those that were planned.

To change this situation we believe it would be wise for five-year and annual plans of economic and social development to include a section that contains the substantiation and indicators of labor savings by factors and is correlated with the sections on raising the technical level of production, introducing scientific organization of labor, and social development. The USSR Central Statistical Administration should insure annual reporting on growth in labor productivity by factors for ministries and departments. Social factors must be added to the classification of these factors. The significance of social factors increases every year (the methodology of their influence on labor productivity has been worked out by the Scientific Research Institute of Labor). It is more correct to determine the initial number of working people for a planning period on the basis of the calculated amount of annual production figured using the level achieved at the end of the base period. The method of calculating the initial number of persons working according to annual production of output in the base period, which is used in current planning, frequently leads to overstating the



number in the plan and, accordingly, to understating assignments for labor productivity.

The main condition for insuring faster growth of labor productivity compared to wages at every enterprise, in all sectors, and for the national economy as a whole is utilization of all factors that determine the levels and growth rates of labor productivity and wages. Some of them such as introduction of new equipment, mechanization and automation of production processes, modernization of equipment, specialization of production, and others, create the possibility of an accelerated increase in labor productivity compared to the increase in wages. Only to a certain degree do these factors depend directly on the amount and quality of labor of a given group of working people, because they are not built by an individual collective -- they are built by society as a whole. For this reason the economic impact from their use should go to the entire society, not just the people employed at those enterprises where the corresponding measures are taken. For example, the increase in wages of persons working in a section where new equipment has been put into use should be linked to structural changes in the composition of the working people (rise in the average level of qualifications of workers and corresponding increases in their wage schedules, an increase in the proportion of engineering-technical personnel in the total number of enterprise personnel, and so on) and with the extent of their participation in technical progress (by supplementary payments envisioned to stimulate the development and introduction of new technology into production).

The result of the action of the other group of factors, which are directly related to increasing the quantity and improving the quality of labor, is growth in wages proportional (or at similar rates) to the increase in labor productivity. Among these factors are improving worker qualifications, condensing work time, reducing intrashift losses of work time, and so on.

Where labor productivity is raised through the action of the first group of factors (introduction of new technology, expanding mechanization of work, and so on) its growth rate should surpass the growth rate of average wages. And on the contrary, when such factors as improvement in qualifications and stepping up the intensity of labor have a greater influence on labor productivity, these rates will tend to go down. This means that wages rise in both cases, but at different rates.

While introduction of new technology is a major influence on raising labor productivity in industry as a whole (in 1976-1980 it accounted for about 56 percent of total growth), in many sectors it is insignificant. To intensify the influence of this factor in all sectors and thus create a real basis for accelerating the growth rate of labor productivity, we must not only improve the substantiation of plan assignments for introduction of new technology but also strive to carry them out fully. At the present time, a number of sectors fail to fulfill their plans for introduction of new technology year after year. Furthermore, those ministries who fulfill the plan for introduction of new technology or are close to it do not fulfill



assignments for growth in labor productivity, which testifies to failure to correlate them with plans.

Insuring accelerated growth rates for labor productivity demands creating conditions for fully loading production capacities and increasing the shift coefficient at enterprises and associations with a high organizational-technical level of production through redistribution of the material and labor resources of enterprises that have obsolete equipment and a low level of production. In those cases where such an approach is not possible, capital investment should be directed to evening out the technical level of production by raising up lagging enterprises for these indicators.

A determined offensive against manual labor, full mechanization and automation of production, and gradual elimination of jobs with difficult and dangerous working conditions are becoming especially important. At the present time enterprises are often forced to pay higher wages, use outdated production norms, raise rating schedules, and increase bonus amounts in order to get people to work in sections with unattractive types of labor. Development and implementation of a comprehensive target program to reduce manual labor also makes it possible to raise the overall level of labor productivity.

The structure of industrial production personnel needs improvement. The number of engineering-technical personnel is growing in connection with technical progress. This is an objective process. But an increase in their proportion of all industrial production personnel and a decrease in the proportion of workers is often not required by production conditions and has a negative effect on the level of production output per person employed in industrial production. All this has a negative influence on the ratio of the growth rates of labor productivity and wages.

Reducing losses of work time and strengthening production and labor discipline are very important for insuring established ratios between growth in labor productivity and wages. Speaking to Moscow machine tool building workers, Yu. V. Andropov said: "We are speaking of a serious attitude toward all aspects of production discipline, including technological discipline, supply discipline, and so on. We must see that the effect of raising discipline is felt in all elements of our production.

"We need conscious worker discipline, the kind of discipline that will move production forward."<sup>4</sup>

Improving the style of work, strengthening control over execution of decisions that are made, and improving party, state, and labor discipline following the decisions of the November 1982 Plenum of the CPSU Central Committee have had a positive effect on production work. In the first half of 1983 the volume of industrial output increased by 4.1 percent in comparison with the same period of 1982 and labor productivity rose by 3.3 percent.

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<sup>4</sup>EKONOMICHESKAYA GAZETA No 6, 1983, p 3.

The brigade form of labor organization is especially important in eliminating losses of working time and realizing the planned ratio between growth in labor productivity and increase in wages. Experience shows that comprehensive brigades working on a unified order taking account of final results have losses of working time that are 2-2.5 times lower than for jobs with individual organization of labor, while labor productivity is 5-10 percent higher.

Revision of output norms occupies a special place among the economic and organizational levers which can be used to regulate the labor productivity-wages ratio. Norm establishment is the connecting link between labor productivity and wages. When output norms rise labor productivity increases in a directly proportional relationship, while piece-rate schedules are decreased accordingly. In order not only to keep wages for piece-rate workers at the earlier level but also to increase them, they must achieve growth in labor productivity exceeding the increase in output norms. Therefore, when revising norms opportunities are created for accelerated growth in labor productivity compared to the increase in wages.

Output norms perform their function when they are technically sound and established at the level of sectorial and intersectorial standards. Unfortunately, however, the situation in this respect today is not entirely satisfactory. Despite the restrictions which are instituted so that workers cannot greatly overfulfill output norms, the proportion of such workers is increasing while plans for labor productivity are not fulfilled. For example, in 1981 more than one-third of the piece-rate workers in industry fulfilled their output norms by 110-130 percent and about one-third fulfilled them by 130 percent and more; in construction the corresponding figures were one-third and one-half. In many cases labor norms are not reviewed for years, even though major organizational-technical measures are taken during this time. They use norms which are called technically substantiated, but in reality are significantly lower than the level of intersectorial and sectorial standards; supplementary payments are even made for fulfilling them (within limits up to 20 percent of the wage rate).

Planning the wages fund on the basis of standards for wage expenditures per ruble of output is very important to establish a correct ratio between the growth rates of labor productivity and average wages. Normative planning poses the tasks of: retreating from the practice of annual planning of this fund "based on the level attained"; establishing a close and substantiated relationship (dependency) between the volume of production and resources for labor payment; and, insuring that the enterprise has an interest in adopting stepped-up plan assignments that exceed the five-year plans.

Experience shows that in many cases wage standards are employed in a formalistic manner. This is related, on the one hand, to the instability of five-year and annual plans and, on the other hand, to the lack of fully developed methodology for determining standards. Correction of production volumes deprives the normative method of planning of its stimulating role because enterprises still do not have an interest in conserving capital for wages. There is a return to planning "from the level attained," but in

kopecks per unit of output produced, not an absolute wages fund amount. In a number of cases a wage fund savings unrelated to the efforts of the enterprise collective is achieved.

As for methodological questions, attention here must be directed to the following shortcoming, which has a negative effect on the ratio between growth in labor productivity and growth in wages. According to the methodological instructions ratified by USSR Gosplan, the USSR State Committee for Labor and Wages, and the USSR Ministry of Finance on procedures for determining long-term wage standards per ruble of output, the standard is determined by the ratio of planned expenditures for wages to industrial production personnel and the volume of output. This means that when ratifying the five-year plan the enterprises and associations of a ministry and all-Union production associations must first of all determine the planned wages fund. Therefore, the norm becomes a derivative quantity, not an initial one.

In practice, a directly proportional dependency is established in many cases between the volume of output produced and the wages fund of industrial production personnel. But there should not be such a dependency. As we know, growth in the volume of output produced does not require a corresponding increase in labor expenditures by all categories of personnel (engineering-technical personnel, employees, security personnel, junior service personnel, and auxiliary workers on time payment). Therefore, the adjustment to the production plan and the corresponding adjustment in the wages fund lead to an unsubstantiated increase in the latter. To overcome this shortcoming only the part of the wages fund for piece-rate workers should be adjusted. It is also wise to fulfill annual assignments for reducing the number of industrial production personnel taking into account the labor savings obtained from normative planning of the wages fund.

Where the wages fund is formed according to standards for expenditure of wages per unit of output, it is essential to insure control over attainment of a faster growth rate for labor productivity. The 30 September 1968 decree of the USSR Council of Ministers entitled "Measures To Improve the Practical Use of the New System of Planning and Economic Stimulation of Production" envisions that in those cases where an increase in average wages (considering payments from the material incentive fund) at production associations and enterprises exceeds growth in labor productivity in the annual plan and actual growth for the year, the corresponding part of the resources of the material incentive fund is transferred to the reserve for use in the following year. But this measure is not applied today to enterprises which have switched to the normative method of planning the wages fund. At the same time, experience testifies that wages can also grow faster than labor productivity at enterprises of those ministries where this technique is applied. In view of these circumstances it seems essential to apply the planned monitoring measures at enterprises which form the wages fund on the basis of expenditures per unit of output.

The amount of capital due to enterprises for paying wages should apparently be made dependent not on the total volume of output produced, but on



fulfillment of the plan for deliveries in conformity with contracts. The mechanism of bank control when issuing capital to enterprises for wages should be used for this purpose, and this should be reflected in appropriate normative enactments.

The proportion of capital used to increase average wages in total growth in the wages fund is rising. Thus, in 1976-1980 63 percent of the growth in the wages fund went to raise average wages; in 1981-1985, according to calculations, the corresponding proportion will be 78 percent. In general this is a positive phenomenon that characterizes the process of intensive expanded reproduction where growth in social production is increasingly secured on the basis of raising labor productivity, which causes a corresponding increase in wages. But in those cases where the efficiency of labor grows at a rate that does not correspond to plan projections while average wages rise at a faster rate, the established ratio needs to be changed.

There are shortcomings in the organization of wage payments that must be eliminated. Among them are: the existence of elements of "leveling"; insufficient correlation between the primary part of wages (wage rate or salary) and the results of labor; shortcomings in planning and forming the wages fund and material incentive fund; violation of ratios and levels of wages for particular categories of persons, in particular engineering-technical personnel and workers; the multiplicity of incentive systems and their lack of comprehensiveness, which results in working people having no interest in reducing labor expenditures, and others.

It should also be observed that the number of measures taken by enterprises and directly related to the use of internal reserves for growth in labor productivity and their impact have systematically declined. The result has been an increase in wages calculated per one percent of rise in labor productivity.

It seems that the time has come for a reorientation in carrying out centralized socioeconomic measures. First of all, consideration should be given to directing them to raising labor productivity. Measures to increase average wages, including the institution of new wage rates, must be implemented progressively as internal reserves for growth and labor productivity are put into use. The planned gradual rise in the minimum wage to 80 rubles a month and the increases in wage rates and salaries of workers and employees should intensify the interest of working people in improving their qualifications, establish more rational differences in payment (depending on conditions and intensity of labor), and promote a rise in the quality of work to establish labor norms.

The system of supplements and additional payments also needs to be revised. Its application is contradictory in character. On the one hand, supplements make it possible to reflect individual differences in labor caused by intensity of labor, qualifications, level attained, and labor productivity more fully. The purpose of supplements and additional payments is to improve the establishment of labor norms. It operates as a method of reducing



the additional need for labor, and unlike the wage rate schedule it has great flexibility.

In some cases supplements for combining occupations, for vocational skills, and the like are established for workers with low wage-skill categories. In this way the payments are used to attract workers to unskilled jobs with difficult working conditions, based on manual labor. This situation must be changed. Supplements should be used to free working people as the result of combining occupations and raising the productivity of the labor of highly skilled personnel. In this case the skilled personnel must know that the supplements can be revised.

There are serious shortcomings in the bonus payment system that must be eliminated. It has become common to use bonus payments to regulate wage levels. At the present time bonus payments are about 30 percent of the level of a worker's wages, including payment according to wage schedules and piece-rate earnings. In many areas of production the actual amounts of bonuses have approached their maximum boundaries or have reached an established threshold (40-60 percent). More than 90 out of every 100 industrial workers -- piece-rate and time-rate -- are paid according to the bonus system.

Many enterprises do not insure that bonuses are used primarily for the basic results of economic activity, as contrasted with bonuses paid under special systems. When raising wage rates and improving organization of the bonus payment system it would be advisable to lower the rate of growth of bonus payments so that their proportion of earnings declines to a level that can have an active and purposeful impact on raising labor productivity and production efficiency.

Insuring conscientious labor by Soviet people and rigorous order and organization are very important in solving the problem of making labor productivity grow faster than wages. The decree of the CPSU Central Committee, USSR Council of Ministers, and AUCCTU entitled "Intensifying Work To Strengthen Socialist Labor Discipline" envisions firmly uprooting cases of tolerance toward violators of labor and production discipline and using measures of public influence and the norms of existing law more effectively for these purposes. The rights given by the USSR Law on Labor Collectives should be used extensively in adopting these measures.

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## LABOR

### READERS' COMMENTS ON LABOR PARTICIPATION COEFFICIENT

Moscow SOTSIALISTICHESKIY TRUD in Russian No 8, Aug 83 pp 45-50

[Review of letters to the editor by T. Shatova, senior scientific associate of the Scientific Research Labor Institute and candidate of economic sciences: "Once Again on the KTU"]

[Text] As in the past, the very important and rather complicated question of optimum use of labor participation coefficients [KTU] in distribution of the work brigade's collective earnings is still an urgent one that arouses great interest on the part of our readers. The KTU has recommended itself in practice as an effective means of enhancing the motivation of every worker to increase his personal contribution to the end results of the collective's activity. In addition to extensive publication of articles and reports directly from enterprises and also the results of scientific summaries of practice made by staff members of sectoral and intersector scientific research organizations and NOT [scientific management] centers, the editors of the journal have also published topic reviews of material on two occasions in recent years.

Many readers have responded to the suggestion made in the journal's issue No 7 for 1981 that they share their experience in use of the KTU in applying a comprehensive work quality control system devised at enterprises. We are in fact devoting the present review mainly to an examination of material sent to the editors of the journal concerning the interaction of KTU and KKT (work quality coefficients) in distribution of the brigade's collective earnings. For instance, in the journal's issue No 5 for 1982 L. Yevlasov, director, and V. Churasov, chief of the OOTIZ [Department of the Organization of Work and Wages], of the Ivano-Frankovsk "AvtoIitnash" Plant, shared the experience of their enterprise, where a uniform method of distribution of collective earnings based on recording the coefficient of the efficiency and quality of work ( $K_{ekt}$ ) is applied in all brigades. This coefficient is a conventional term quantitatively expressing the level of efficiency and quality of work not only of each worker, but also of the collective of the brigade as a whole, which is also very important for objectively totaling up the results of socialist competition among brigades. As is evident from the article, the system applied there for distribution is rather complicated and multistaged, but it has been thoroughly worked out and offers the possibility of a high degree of objectivity in evaluating the efficiency and quality of work. In certain

consolidated and mixed brigades that do a job from start to finish and use both piece rates and time rates for remuneration, individual productivity coefficients ( $K_{ip}$ ) are also used at the workers' request. In essence they are base coefficients which take into account the average monthly earnings the workers have achieved over the previous 6-12 months.

Along with the generally favorable assessment of this experiment, one cannot but express doubt about the legitimacy and effectiveness of using a single method of distributing earnings for all brigades. As V. Novakovskiy of Riga noted in his statement (No 1, 1982), even in the shops of a single plant there are differing conditions and circumstances requiring a differentiated approach to application of different methods of organization of work and of work incentives. This suggestion that it is advisable for intersector and sectoral recommendations on methods to envisage the possibility of using different methods of distributing collective earnings (at the choice of the brigade) deserves attention in our view.

In the article which he sent to the editors of the journal A. Kozlov, an economist from Kalinin, analyzes the method of distribution of the brigade's collective earnings, in which evaluation of the quality of work is one of the elements. Lists are carefully drawn up of the most important criteria for determination of this rating. For instance, in addition to the necessary individual characteristics of a piece-rate worker (quota fulfillment, product acceptance on the first sample, participation in production innovation, work discipline, and so on), criteria such as these are also used in the  $K_{kt}$ :

contribution to fulfillment of the production plan of the section or shop, to maintaining the general smoothness of operation, to introduction of progressive technological processes, and so on. The KTU does not coincide here in its content with the  $K_{kt}$ . The author of the letter accordingly proposes that

both coefficients be retained and that differing criteria and a general proportion of reduction or increase of wages be determined for each of them. In this connection he proposes that the KTU be used for distribution of the extra piece-rate earning and bonuses be distributed by means of the  $K_{kt}$ .

A. Kozlov also deems it necessary to establish a definite interrelationship between these coefficients: that is, if the KTU goes up or down (from 1), additional adjustments are also made in the  $K_{kt}$ , but not in a ratio 1:1, but

in a ratio 1:5. If, say, the KTU should rise by 0.3, then 0.06 ( $0.30 \times 1/5$ ) should be added to the  $K_{kt}$ . The author proposes that all these calculations

be made by the brigade itself, though it seems to us that the help of people who work with economic statistics is needed here.

Comrade Kozlov's proposed change of the level of the  $K_{kt}$  as a function of the upward or downward movement of the level of the KTU does have a certain rationale, since the personal participation of everyone in achievement of the results for which the brigade is being paid a bonus must also be reflected in the size of the bonus being distributed by means of the  $K_{kt}$ . But in our view such adjustments of the  $K_{kt}$  undermine the objectiveness of the very system of

determining them. At the same time the author of the article expresses wishes with which we cannot agree: the actual procedure of calculating the KTU within the collective of the brigade must not by any means be embarrassing to any member of the collective. After all, work results differing from those of others do not always occur because the worker himself does not want to work; they can also result from other causes: physical condition, individual abilities, habits and experience, and so on.

M. Shvartsapel', chief of the department of wages and labor of the Odessa Headgear Factory, notes in his article that recording individual output in connection with remuneration in the garment industry corresponds to the specific nature of the production process. For that reason this kind of recording is retained even when the brigades of the new type are in operation. He correctly raises the issue of the need for both a quantitative and also a qualitative evaluation of the work of every member of the brigade when a method is being prepared for determining the KTU. When the KTU reflect only qualitative indicators, the result is that this indicator is replaced by work quality coefficients worked out previously. In defining the qualitative evaluation the author proposes that two factors be distinguished--the extensive and the intensive. The extensive ( $K_o$ ) is the ratio of time worked by each worker to the planned amount of worktime in the current month. The intensive factor ( $K_v$ ) is the ratio of the percentage of fulfillment of the worker's output quota to the average percentage of fulfillment of quotas by the brigade.

M. Shvartsapel' also proposes that the qualitative evaluation be made with respect to two factors: the skill level of the labor and the level of its social recognition. The skill level ( $K_k$ ) is defined as the ratio of the average wage rate of jobs performed by the worker to the average wage rate of jobs performed by the brigade. The level of social recognition of labor ( $K_t$ ) is calculated every day on the basis of the KSUKP [comprehensive product quality control system] which has been worked out at the enterprise.

The KTU is defined as the product of the four coefficients indicated above:  

$$KTU = K_o K_v K_k K_t.$$

This practice in determining the level of the KTU can in general be favored. But we should note that it can hardly find wide application in enterprises of other branches of industry where the workers do not perform one and the same operation, but different operations, and where the proposed precise recording of the complexity of operations and every worker's level of performance of quotas is not always possible, and sometimes it is not even advisable. After all, detailed recording of only the individual indicators of everyone's work can promote a return to the principles of individual piecework. Incidentally, the author does not report how the motivation to improve the general and final results of the brigade's work is guaranteed at the factory.

An article by P. Pogonyalkin on the practice of determining the collective earnings and bonus with the calculated coefficient of the individual



productivity of labor ( $K_{1pt}$ ), which is determined on the basis of the quota-hours worked in the month, was published in the journal's issue No 4 for 1982. V. Andriyenko, senior scientific associate of the Economics Institute of the USSR Academy of Sciences, objects to having the quota-hours worked by each worker used instead of the KTU in determination of the brigade's overall earnings. He supports his objections by arguing that the problem of "profitable" and "unprofitable" operation remains acute even when the brigade is the form of organization of work. In his opinion, it ceases to be acute only in those brigades where there is no individual recording of output in quota-hours. However, having expressed this valid criticism, in his arguments the author comes to what seems to us an incorrect conclusion to the effect that the purpose of the KTU is not meant to resolve, but to bypass the problem of "profitable" and "unprofitable" operation. He feels that use of the KTU will be beneficial only when quotas of differing strenuousness are in effect, where it is not possible to objectively evaluate each worker's contribution to the overall achievements of the collective. Regarding the existence of quotas of differing strenuousness as a "stumbling block" on the way toward correct distribution of the collective earnings, Comrade Andriyenko proposes that an experiment be conducted in granting brigades the right to regulate their own output quotas in order to arrive at their equal strenuousness. Here the planning target would be set for the brigade according to the quotas in effect at the enterprise, but with respect to each work station the brigade would be given the right to correct them.

It seems to us that this considerably complicates the activity of the brigades, since they are also being given the duty to concern themselves (instead of the work norm setters) with improvement or correction of the quotas. It would be more correct (and this is in fact done in many brigades where the differing strenuousness of quotas inevitably has to be dealt with) to distribute more or less profitable operations uniformly among the workers. If this is not feasible because of the specialization of the individual workers, then the relative share of operations performed by each member of the brigade subject to the more strenuous output (time) quotas should be taken into account in the level of the KTU. After all, in the method of "self-correction" of the quotas proposed by Comrade Andriyenko the possibility of friction in the brigade because of their uneven strenuousness would presumably increase even more, since instead of a qualified and scientifically sound approach to work norm setting, a rather subjective method of evaluating the strenuousness of quotas will predominate.

Nor can one agree with the opinion the author has expressed that the forms of the organization of work and the forms of remuneration are at cross purposes. The organization of work by means of the brigade covered by a single job order helps to intensify collectivist principles in work, he writes. But in remuneration, in the author's opinion, the opposite tendency is more justified--the individual approach to establishing the level of remuneration. Possibly the author draws this conclusion from an analysis of the practice of those enterprises which have not yet managed to achieve a strengthening of incentives for improvement of the final results of the brigade's work and where they have been carried away with incentives tied to individual indicators. Unless these contradictions are overcome, one can hardly expect a better result from introduction of the brigade forms of the organization of work.

A. Tikhonov, chief of the department for the organization of work, work norm setting and labor productivity of the UzSSR State Committee for Labor and Social Problems, criticizes the method of determining the level of the KTU at the Verkh-Isetskii Metallurgical Plant, expounded in the article by A. Gusev, I. Zubkov and Yu. Kryukov (No 8, 1982). He notes that a number of factors tending to increase the level of the KTU duplicate one another. The author proposes his own method of defining the KTU, for which he singles out three factors which in his view have decisive importance to increasing production efficiency: the individual productivity of labor, the individual quality of work, and individual discipline (production discipline and work discipline). He proposes that the state of these indicators be evaluated on a three-point scale: "low," "satisfactory" and "high." Definite numerical values would correspond to each of these ratings: 0--low; 0.15--satisfactory; 0.167--high. The maximum rating for each indicator for the month as a whole may not be higher than 0.67 (since the value of the KTU can range from 0 to 2). The factors are evaluated by the brigade leader by a spot check on each worker 3-4 times a month. The value of the KTU is determined by totaling up the results obtained. These figures are submitted for approval by the brigade council.

But the author does not tell us how the individual productivity of labor, the individual quality of work and individual production and work discipline are determined. And without such objective indicators the ratings submitted by the brigade leader for verification might be subjective in nature. He says nothing about how one can determine from those assessments of the individual qualities of the members of the brigade their contribution to the final results.

In the materials which S. Potemkin and P. Shigol' (Kharkov Engineering Economics Institute) sent to the editors the point of departure is the erroneous practice of those enterprises which are using so-called base coefficients for distribution of the entire earnings of the brigade; those coefficients are based on recording the level of wages of members of the brigade in the past (3, 6 or more months), without any sort of adjustment in accordance with the results of the activity of every member of the brigade during the period for which settlement is being made. This practice has a very limited sphere of application. Moreover, we know of quite a few examples where the base coefficients themselves are revised with the passage of a certain time by decision of the brigade so as to take into account the contribution of the workers to the overall results.

Certain authors are fascinated with the mere mechanics of the computations and propose their own methods in which calculation of the level of the KTU is essentially an end in itself, and the earnings of the brigade (all or part) have already been determined by some other method, without taking this coefficient into account. Why, then, one wonders, all these complicated calculations? After all, the only reason we in fact need the KTU is with its help to correctly, i.e., as objectively as possible, ascertain the contribution of each person to the overall results and on that basis to fairly distribute the earnings or a part of them (piece-rate supplement, bonus) as a collective. In addition, it must not be forgotten that the level of the KTU must be

computed not by specialists in economic statistics, but by the workers themselves, the brigade leaders and the brigade councils. That is why complicated calculations are inapplicable here.

In his critical remarks about methods of determining the level of the KTU Ya. Kravtsov, senior engineer of the Kaluga Chemical and Pharmaceutical Plant, takes as his point of departure the principle of correspondence between the number of members of the brigade and the sum of the work participation coefficient, which has been applied almost nowhere else. We noted in the last survey that this principle was not provided for in any of the directives or methods on the brigade form of the organization of work and incentives. Its use in practice, as the author points out, as a matter of fact does bring about an unjustified drop in the level of the KTU of certain members of the brigade solely because it has been quite justifiably raised for some one of them.

V. Rakotí, deputy chief of the wages department of the USSR State Committee for Labor and Social Problems, correctly pointed out in his article (No 1, 1982) that certain scientists and practitioners equate the worker's real contribution to the overall results with his individual output. But these are far from being one and the same thing. Individual output is only one of the factors characterizing the worker's real contribution. We have already spoken about how it is illegitimate to use only this indicator to determine the personal contribution to the overall results in the previous survey.

The contribution of every member of the brigade to the overall results of its work cannot be the same, especially in the first stages of the collective's evolution, when all its members are sizing one another up and are still not very clear about how their work will be rated by the collective. As they gain greater confidence in one another, as the less experienced and skilled workers are brought along to the level of the pacesetters, as consciousness increases and collectivism is reinforced, differences between the members of the brigade in their skill, their experience, their attitude toward work and the results of their work gradually even out. Consequently, improvement of the methods of distributing the entire brigade's earnings including the method involving the use of the KTU, must in our view go through the following stages. First--maximum differentiation of the level of the KTU on the basis of carefully developed criteria for evaluation of the good and bad aspects of the activity of every member of the brigade characterizing his contribution to the overall results. In the next stage, as a close-knit collective is shaped, differences in the levels of the KTU will be less sizable, since the skill of the workers and work in production discipline and, consequently, labor productivity will differ less sharply than in the initial period of the brigade's creation. In the stage of the higher level of development of the brigade form of the organization of work and incentives, when there is no need for economic coercion toward more productive work, the KTU and other methods of recording the personal work contribution to the overall results of work retain their importance because of the potential possibility they afford the collective of the brigade to take note of an outstanding contribution (or unexpected lapse) of its individual members. The quantity and quality of each one's work will be mainly measured by the same factors as in

the individual organization of work--by its wage rate class and the time worked.

Sometimes this question arises: Which period is it whose results are used to determine the KTU? At most enterprises this is done according to the results of work for the month. There are also cases where the level of the KTU is determined daily, when the appropriate conditions for this exist.

But we cannot but note that keeping a daily record of all the factors characterizing the effectiveness of the work by every member of the brigade and working out the daily levels of the KTU on this basis (or the cumulative point total) puts a great amount of additional work on the brigade leader to the detriment of his performance of his direct and immediate duties as a worker. Disturbing symptoms have already arisen in practice when brigade leaders are freed entirely of production work because of the greater complexity of recordkeeping and organizational functions. If this, forgive the expression, "progressive" method should become widespread, then our industry and other sectors of the economy (where it may also occur), which even now are experiencing a serious shortage of manpower, would be short many more thousands of the most skilled and experienced workers, which is what a majority of the brigade leaders are. Inevitably this will have an adverse effect on the overall indicators of labor productivity and also on the moral climate in the brigades, since their members have to "do all the work" of their leaders. That is why everything needs to be done to simplify the keeping of records in brigades, without detracting from the accuracy of the records.

The so-called "scale" method of determining the KTU so as to take into account the personal output of each member of the brigade and the work quality coefficient, which has been proposed by I. Stepanov (Sevastopol), seems to us very worthwhile in this regard. By means of a special scale that works like a slide rule it is possible to record simultaneously the individual output of every person (in percentages) and the  $K_{kt}$  attained (according to the system of defect-free work in effect at the enterprises). The level of each worker's KTU is quickly and easily determined depending on these indicators.

The virtue of the method proposed is that here the indicators of the activity of the collective of the brigade as a whole and of every member of the brigade individually are closely linked, since the level of every worker's KTU, other things being equal, depends on the overall results of the brigade's activity (level of fulfillment of quotas and the entire brigade's work quality coefficient). This close dependence tends to increase the motivation of every member of the brigade not only to improve the indicators of his own work but also to achieve high results of the collective as a whole.

The basis of the scale method of determining the KTU is a simple device the author developed, a slide rule made of transparent and hard Plexiglas that is convenient in its shape and size; levels of the  $K_{kt}$  are placed on the left, while on the right there are 20 columns with levels of the KTU. The upper part of the slide rule has moving strips which characterize the levels of fulfillment of quotas by the entire brigade and by the individual. There are



several of the removable strips; they differ in levels of fulfillment of quotas, which makes it possible for them to be used in sections with differing levels of work quotas. The levels of the KTU of individual workers found by means of this scale may be increased (or reduced) on the basis of another three indicators: the return of products to be redone, fulfillment of the assignment of the shift, and tutoring. The KTU adjusted in that way serves as the basis for distribution of the extra piece-rate pay and the bonus of the brigade. Use of this scale is so convenient that the results of work both of the brigade and of its individual members for any segment of time can be totaled up without investing a great deal of time.

To be sure, the method itself is not devoid of certain shortcomings. For instance, the author made no provision for determining the KTU when the level of fulfillment of quotas was less than 100 percent, nor when deviations of the level of individual output from that of the brigade average were sizable (that is, when the sliding strip must be moved far to the left of the value of the KTU equal to unity).

The letters to the editor used in the survey indicate that the problem of determining and applying the KTU is still a very topical one. At the same time the readers report that a great deal of experience has already been gained at enterprises in solving these problems and that the explorations in this direction are continuing.

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## DEMOGRAPHY

### POPULATION AND EDUCATION STATISTICS GIVEN

Moscow VESTNIK STATISTIKI In Russian No 7, Jul 83 pp 56; 61-62; 65-80

[Text] I. ON THE 80TH ANNIVERSARY OF THE SECOND RSDPR [RUSSIAN SOCIAL DEMOCRATIC LABOR PARTY] CONGRESS -- SOME DATA ON THE ECONOMIC AND SOCIAL DEVELOPMENT OF THE USSR IN COMPARISON WITH THE PRE-REVOLUTIONARY PERIOD

"Our economic concerns are our overall concerns. It is the most interesting policy for us."

V. I. Lenin

1. Population in Pre-revolutionary Russia and the USSR (at the beginning of the year; within the boundaries corresponding to the years)					
Years	Population Millions of People	In Particular		As a Percentage of the Entire Population	
		Urban Population	Rural Population	Urban Population	Rural Population
1870.....	86.3	9.5	76.8	11	89
1897.....	128.2	20.1	108.1	16	84
1913(at the end of the year)					
within the borders of the former Russian Empire.....	165.7	30.6	135.1	18	82
within the modern borders of the USSR	159.2	28.5	130.7	18	82
1940.....	194.1	63.1	131.0	33	67
1970*.....	241.7	136.0	105.7	56	44
1980.....	264.5	166.2	98.3	63	37
1983.....	271.2	174.6	96.6	64	36

\*On 15 Jan

2. Social Makeup of the Population (in percentages)							
	1913	1924	1939	1959	1970	1979	1982
Total population (including non-working family members.....)	100	100	100	100	100	100	100
In particular:							
laborers and office workers.....	17.0	14.8	50.2	68.3	79.5	85.1	86.7
laborers in the above.....	14.0	10.4	33.7	50.2	57.4	60.0	60.9
kolkhoz peasantry and cooperative handicraft workers*.....	--	1.3	47.2	31.4	20.5	14.9	13.3
individual peasants and non-cooperative peasants.....	66.7	75.4	2.6	0.3	0.0	0.0	0.0
merchants and kulaks.....	16.3	8.5	--	--	--	--	--
*Cooperative handicraft workers, i.e. members of artels in producers' co-operatives together with the non-working members of their families, amounted to 0.5 percent in 1924 and 2.3 percent in 1939 of the total population. Since 1959 they have been included in the number of laborers and office workers in connection with the transfer of former artels in producers' cooperatives to the system of state enterprises.							

There are two friendly classes in the USSR--the worker class and kolkhoz peasantry. A substantial portion of the population is made up of the intelligentsia--workers who use their mental faculties. In 1926 there were less than 3 million workers who were engaged primarily in mental work while at the present time they number more than 42 million workers.

A new historical community of people has been formed in our country--the soviet people. "The chief result of the creative activity of the soviet people under the leadership of the Communist Party is the construction of developing socialism in the USSR" (from the CPSU Central Committee decree "Concerning the 80th Anniversary of the second RSDPR Congress").

Yu. B. Andropov stated at the June (1983) plenum of the CPSU Central Committee, "For a correct understanding of the long-range outlook--in economics, policy and ideology--one must first of all clearly conceive of the nature of this stage of social development at which we are now situated. The party defined this to be the stage of developing socialism. This is a society where an economic base, social structure, political system, and the corresponding socialist principles have already been completely formed, and where socialism is developing, as they like to say, on its own collective foundation."

9. Number of People With a Higher and Secondary Education (complete or incomplete)										
	Millions of People					Per 1000 People Age 10 or Older				
	1939	1959	1970	1979	1983	1939	1959	1970	1979	1983
All people having a higher or secondary education (complete or incomplete).....	15.9	58.7	95.0	139.1	152.3	108	361	483	638	678
In particular:										
complete higher.....	1.2	3.8	8.3	14.8	17.8	8	23	42	68	79
incomplete higher....	14.7	1.7	2.6	3.2	3.5	100	11	13	15	16
specialized secondary	14.7	7.9	13.4	23.5	27.2	100	48	68	107	121
general secondary....	14.7	9.9	23.4	45.1	56.4	100	61	119	207	251
incomplete secondary	14.7	35.4	47.3	52.5	47.4	100	218	241	241	211

In pre-revolutionary Russia there were only about 290,000 people who had a higher, incomplete higher, or specialized secondary education.

Based on the data from the only general census of the population from pre-revolutionary Russia (1897) 76 percent of the population age 9 or older and 88 percent of the women were illiterate. Many peoples of Central Asia and other regions of tsarist Russia were almost completely illiterate. The number of people that received more than an elementary education amounted to only 1.4 million people in all of tsarist Russia; these were primarily capitalists, landowners, bureaucrats, ministers and members of their families.

10. Education Level of the Employed Population					
	1939	1959	1970	1979	1983
Those having an education per 1000 employed:					
higher and secondary (complete or incomplete):					
Total population.....	123	433	653	805	858
Urban population.....	242	564	748	863	894
Rural population.....	63	316	499	693	779
higher:					
Total population.....	13	33	65	100	113
Urban population.....	32	59	90	130	142
Rural population.....	3	11	25	42	50
secondary:					
Total population.....	110	400	588	705	745
Urban population.....	210	505	658	733	752
Rural population.....	60	305	474	651	729



**11. Number of Students in Higher Educational Institutions  
By Union Republics at the Beginning of the Academic Year  
(thousands of people)**

	1914/15	1940/41	1970/71	1980/81	1982/83
USSR.....	127.4	811.7	4580.6	5235.2	5315.2
RSFSR.....	86.5	478.1	2671.7	3045.8	3073.5
Ukrainian SSR.....	35.2	196.8	806.6	880.4	884.9
Belorussian SSR.....	--	21.5	140.0	177.0	182.2
Uzbek SSR.....	--	19.1	232.9	278.1	288.8
Kazakh SSR.....	--	10.4	198.9	260.0	275.6
Georgian SSR.....	0.3	28.5	89.3	85.8	89.0
Azerbaijan SSR.....	--	14.6	100.1	107.0	110.0
Lithuanian SSR.....	--	6.0	57.0	71.0	71.1
Moldavian SSR.....	--	2.5	44.8	51.3	53.4
Latvian SSR.....	2.1	9.9	40.8	47.2	46.6
Kirghiz SSR.....	--	3.1	48.4	55.4	58.9
Tajik SSR.....	--	2.3	44.5	56.8	57.9
Armenian SSR.....	--	11.1	54.4	58.1	59.2
Turkmen SSR.....	--	3.0	29.1	35.8	38.7
Estonian SSR.....	3.3	4.8	22.1	25.5	25.4

12. Number of Pupils in Specialized Secondary Educational Institutions By Union Republics at the Beginning of the Academic Year (thousands of people)					
	1914/15	1940/41	1970/71	1980/81	1982/83
USSR.....	54.3	974.8	4388.0	4611.7	4517.7
RSFSR.....	35.4	594.0	2606.2	2641.6	2543.0
Ukrainian SSR.....	12.5	196.2	797.9	803.1	795.4
Belorussian SSR.....	1.4	35.0	146.1	162.8	162.1
Uzbek SSR.....	0.1	25.1	163.3	237.7	251.5
Kazakh SSR.....	0.3	30.3	217.9	265.4	274.0
Georgian SSR.....	0.5	26.1	53.1	53.4	52.8
Azerbaijan SSR.....	0.5	17.4	70.8	79.0	78.7
Lithuanian SSR.....	1.5	6.4	65.3	68.4	64.6
Moldavian SSR.....	0.5	4.1	51.7	58.9	59.1
Latvian SSR.....	1.3	9.6	38.8	42.2	40.6
Kirghiz SSR.....	--	6.0	41.7	49.4	50.6
Tajik SSR.....	--	5.9	35.3	40.1	39.2
Armenian SSR.....	0.1	8.9	47.1	51.8	48.1
Turkmen SSR.....	--	7.7	28.7	34.0	34.6
Estonian SSR.....	0.2	2.1	24.1	23.9	23.4

13. Number of Physicians Among All Specialists  
(thousands of people)

	1913	1940	1970	1980	1982
USSR.....	28.1	155.3	668.4	997.1	1071.2
RSFSR.....	15.9	90.8	378.4	560.7	599.3
Ukrainian SSR.....	7.8	35.3	131.0	182.7	195.6
Belorussian SSR.....	1.2	5.2	23.4	32.7	34.6
Uzbek SSR.....	0.14	3.2	24.4	46.0	52.3
Kazakh SSR.....	0.2	2.7	28.8	47.8	51.9
Georgian SSR.....	0.5	4.9	17.1	24.2	26.0
Azerbaijan SSR.....	0.4	3.3	13.1	20.7	22.4
Lithuanian SSR.....	0.4	2.0	8.7	13.4	14.2
Moldavian SSR.....	0.3	1.1	7.4	12.5	13.8
Latvian SSR.....	0.6	2.5	8.5	11.1	11.7
Kirghiz SSR.....	0.02	0.6	6.2	10.6	11.7
Tajik SSR.....	0.02	0.6	4.7	9.4	10.6
Armenian SSR.....	0.07	1.0	7.3	10.9	11.6
Turkmen SSR.....	0.07	1.0	4.8	8.2	8.9
Estonian SSR.....	0.5	1.1	4.6	6.2	6.6

## II. PUBLIC EDUCATION IN THE USSR

1. General Education Day Schools by Union Republics At the Beginning of the 1982/83 Academic Year (thousands)				
	Number of Schools		In Particular Secondary Schools	
	In Urban Areas	In Rural Areas	In Urban Areas	In Rural Areas
USSR.....	32.2	98.3	23.8	34.3
RSFSR.....	17.8	49.6	12.7	14.5
Ukrainian SSR.....	5.9	15.2	4.1	4.5
Belorussian SSR.....	1.0	5.3	0.9	1.5
Uzbek SSR.....	1.4	6.1	1.2	4.2
Kazakh SSR.....	1.6	6.3	1.3	2.7
Georgian SSR.....	0.7	3.0	0.7	1.1
Azerbaijan SSR.....	0.8	3.3	0.6	1.5
Lithuanian SSR.....	0.5	1.7	0.4	0.2
Moldavian SSR.....	0.3	1.3	0.3	0.6
Latvian SSR.....	0.4	0.5	0.2	0.1
Kirghiz SSR.....	0.3	1.3	0.2	0.9
Tajik SSR.....	0.4	2.3	0.3	1.1
Armenian SSR.....	0.5	0.9	0.4	0.6
Turkmen SSR.....	0.4	1.2	0.3	0.8
Estonian SSR.....	0.2	0.3	0.2	--



**2. Graduates From General Education Day Schools in 1982**  
(thousands of people)

	Completed Grammar School		Completed Secondary School	
	In Urban Areas	In Rural Areas	In Urban Areas	In Rural Areas
USSR.....	2,130	1,805	1,290	1,175
RSFSR.....	1,122	649	652	423
Ukrainian SSR.....	394	288	241	144
Belorussian SSR.....	77	68	52	43
Uzbek SSR.....	118	245	74	181
Kazakh SSR.....	123	163	74	111
Georgian SSR.....	38	43	30	35
Azerbaijan SSR.....	59	85	41	59
Lithuanian SSR.....	35	18	21	7
Moldavian SSR.....	20	46	12	24
Latvian SSR.....	22	9	13	2
Kirghiz SSR.....	22	56	13	40
Tajik SSR.....	27	67	19	53
Armenian SSR.....	31	25	23	19
Turkmen SSR.....	28	39	16	33
Estonian SSR.....	14	4	9	1

**3. Number of Pupils in General Education Day Schools**  
Left Back During the 1981/82 Academic Year

	Thousands of People		Thousands of People
Grade 1.....	37	Grade 7.....	12
Grade 2.....	14	Grade 8.....	10
Grade 3.....	9	Grade 9.....	14
Grade 4.....	11	Grade 10.....	2
Grade 5.....	9	Grade 11.....	0.1
Grade 6.....	11	Grades 1-10 (11)..	129

**4. Extended Day Schools By Union Republics  
At the Beginning of the 1982/83 Academic Year**

	Number of Extended Day Schools and Schools With Ex- tended Day Groups		Number of Pupils in Extended Day Groups, thousands		As a Percentage Of Pupils in Grades 1-8	
	In Urban Areas	In Rural Areas	In Urban Areas	In Rural Areas	In Urban Areas	In Rural Areas
USSR.....	27,773	56,063	6,098	5,730	31	40
RSFSR.....	15,277	24,654	3,190	2,127	31	44
Ukrainian SSR.....	5,225	10,902	1,301	1,169	37	56
Belorussian SSR.....	897	2,392	182	180	25	40
Uzbek SSR.....	1,308	5,474	431	855	38	37
Kazakh SSR.....	1,394	4,421	315	534	28	37
Georgian SSR.....	569	886	57	66	14	19
Azerbaijan SSR.....	720	2,001	146	212	29	33
Lithuanian SSR.....	380	518	63	34	21	25
Moldavian SSR.....	263	1,019	81	166	40	45
Latvian SSR.....	304	400	55	28	27	42
Kirghiz SSR.....	224	777	57	119	28	23
Tajik SSR.....	301	1,177	71	119	27	18
Armenian SSR.....	416	576	71	61	25	34
Turkmen SSR.....	306	659	47	46	18	12
Estonian SSR.....	189	207	31	14	24	37

**5. Number of Pupils in Secondary Educational Institutions Studying For  
A Secondary Education at the Beginning of the 1982/83 Academic Year**

	Thousands Of People	As a Percentage of the Total
Total being taught.....	13,329	100
In particular:		
in grades 9-10 (11) in general education day schools.....	4,887	36.7
in grades 9-10 (11) in evening (shift) general education schools.....	4,207	31.6
in secondary professional and technical schools.....	2,312	17.3
in primary departments of specialized secondary education institutions.....	1,923	14.4

6. Higher Education Institutions by Sector Groups of Education Institutions  
By Union Republics at the Beginning of the 1982/82 Academic Year

	Total Higher Education Institutions	In Particular Education Institutions						
		Industry and Construction	Transport and Communications	Agriculture	Health Care, Physical Fitness and Sports	Education	Art and Cinematography	Economics and Law
USSR.....	891	232	46	104	57	106	288	58
RSFSR.....	500	151	29	58	33	55	148	26
Ukrainian SSR..	146	40	10	17	10	18	42	9
Belorussian SSR	33	9	1	4	3	4	10	2
Uzbek SSR.....	43	5	3	4	3	6	20	2
Kazakh SSR.....	55	12	2	7	3	6	23	2
Georgian SSR...	19	2	--	3	--	2	9	3
Azerbaijan SSR	18	4	--	1	2	2	7	2
Lithuanian SSR	12	2	--	2	1	2	3	2
Moldavian SSR..	8	1	--	1	--	1	4	1
Latvian SSR....	10	1	1	1	--	2	3	2
Birghiz SSR....	10	1	--	1	--	2	5	1
Tajik SSR.....	10	1	--	1	--	2	5	1
Armenian SSR...	13	1	--	2	1	2	5	2
Turkmen SSR....	8	1	--	1	1	2	2	1
Estonian SSR...	6	1	--	1	--	--	2	2

**7. Specialized Secondary Education Institutions by Sector Groups of Education Institutions By Union Republics at the Beginning of the 1982/82 Academic Year**

	Total Specialized Secondary Education Institutions	In Particular Education Institutions						
		Industry and Construction	Transport and Communications	Agriculture	Health Care, Physical Fitness and Sports	Education	Art and Cinematography	Economics and Law
USSR.....	4,418	1,486	255	673	391	658	598	357
RSFSR.....	2,520	929	150	314	188	392	364	183
Ukrainian SSR..	728	247	48	104	101	108	72	48
Belorussian SSR	138	40	7	25	15	19	19	13
Uzbek SSR.....	236	63	9	53	24	29	42	16
Kazakh SSR.....	240	61	17	49	20	32	40	21
Georgian SSR...	90	21	3	22	6	14	6	18
Azerbaijan SSR	75	19	3	19	4	10	9	11
Lithuanian SSR	67	18	2	22	5	6	7	7
Moldavian SSR..	51	13	2	12	5	8	7	4
Latvian SSR....	55	8	5	17	3	9	2	11
Kirghiz SSR....	42	10	1	6	4	9	7	5
Tajik SSR.....	38	11	--	3	5	7	9	3
Armenian SSR...	66	30	4	9	4	7	4	8
Turkmen SSR....	35	8	2	6	3	5	6	5
Estonian SSR...	37	8	2	12	4	3	4	4



## COMPOSITION OF FAMILIES\*

Distribution of Families by Their Size and Nationality of Family Members by Union Republics							
	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	
Kazakh SSR							
Urban and rural population							
All Families.....	3,293,878	696,654	812,999	774,914	400,605	223,195	4.1
Families where all members belong to one nationality.....	2,584,569	567,400	615,998	569,770	302,858	181,352	4.2
Of the above, families where all members are:							
Kazakhs.....	860,436	92,377	120,318	137,519	124,780	108,423	5.5
Russians.....	1,261,062	364,627	390,930	328,688	118,036	38,609	3.3
Germans.....	150,746	36,095	35,309	35,719	21,904	11,670	3.8
Ukrainians.....	105,315	36,361	29,171	24,648	9,792	3,445	3.3
Tatars.....	46,543	10,845	11,692	12,546	6,509	2,862	3.7
Uzbeks.....	35,028	2,711	3,268	4,388	4,531	4,981	6.2
Families where members belong to different nationalities.....	709,309	129,254	197,001	205,144	97,747	41,843	3.8
Urban population							
All Families.....	1,923,686	456,597	556,160	509,178	210,117	89,662	3.7
Families where all members belong to one nationality.....	1,463,570	369,552	417,533	368,412	152,751	68,823	3.7
Of the above, families where all members are:							
Kazakhs.....	264,213	32,317	44,547	51,745	42,203	31,546	5.0
Russians.....	968,123	277,225	313,264	258,875	83,238	24,455	3.3
Germans.....	63,759	16,330	15,945	15,840	8,669	3,985	3.7
Ukrainians.....	58,828	20,108	18,100	14,924	4,161	1,076	3.1
Tatars.....	36,121	8,761	9,503	10,151	4,795	1,860	3.6
Uzbeks.....	11,929	1,074	1,299	1,811	1,741	1,763	5.8
Families where members belong to different nationalities.....	460,116	87,045	138,627	140,766	57,366	20,839	3.7

\*Continuation of the publication of the census results in VESTNIK STATISTIKI Magazine (for the beginning see No. 2, 6-12, for 1980; No. 1, 2, 4, 11, 12 for 1981; No. 1, 7, 9, 10 for 1982 and No. 2, 4, 6 for 1983); data on the distribution of families in the USSR by their size and nationality of members is in VESTNIK STATISTIKI No. 12 for 1981; for the RSFSR, UKSSR, BSSR, and UzSSR in No. 12 for 1983.

	Number of Families	In Particular Families Consisting of The Following Living Together:							Average Size of the Family
		2	3	4	5	6	7		
		People	People	People	People	People	People		
Rural population									
All Families.....	1,370,192	240,057	256,839	265,736	190,488	133,533	283,539		4.7
Families where all members belong to one nationality.....	1,120,999	197,848	198,465	201,358	150,107	112,529	260,692		4.9
Of the above, families where all members are:									
Kazakhs.....	596,223	60,060	75,771	85,774	82,577	76,877	215,164		5.7
Russians.....	292,939	87,402	77,666	69,813	34,798	14,154	9,106		3.5
Germans.....	86,987	19,765	19,364	19,879	13,235	7,685	7,059		4.0
Ukrainians.....	46,487	16,253	11,071	9,724	5,631	2,369	1,439		3.4
Tatars.....	10,422	2,084	2,189	2,395	1,714	1,002	1,038		4.1
Uzbeks.....	23,099	1,637	1,969	2,577	2,790	3,218	10,908		6.4
Families where members belong to different nationalities.....	249,193	42,209	58,374	64,378	40,381	21,004	22,847		4.1
Georgian SSR									
Urban and rural population									
All Families.....	1,150,836	243,199	228,745	287,510	192,263	112,413	86,706		4.0
Families where all members belong to one nationality.....	1,030,716	220,101	201,986	256,698	173,177	101,579	77,175		4.0
Of the above, families where all members are:									
Georgians.....	750,430	154,618	146,490	195,342	129,622	73,701	50,657		4.0
Abkhazi.....	14,985	2,745	2,733	3,094	2,550	1,825	2,038		4.4
Osetins.....	29,738	6,741	5,605	7,080	5,606	3,008	1,698		4.0
Armenians.....	84,234	16,069	15,581	20,221	15,783	9,547	7,033		4.2
Russians.....	70,104	26,973	19,388	15,457	5,318	2,046	922		3.1
Azerbaijanis.....	44,325	4,572	5,062	7,100	8,519	7,799	11,273		5.2
Families where members belong to different nationalities.....	120,120	23,098	26,759	30,812	19,086	10,834	9,531		4.1

	Number of Families	In Particular Families Consisting of The Following Living Together:							Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People		
Urban population									
All Families.....	603,874	129,403	130,556	170,874	93,245	47,653	32,143	3.9	
Families where all members belong to one nationality.....	510,158	111,003	109,050	145,893	78,871	39,872	25,469	3.9	
Of the above, families where all members are:									
Georgians.....	352,086	66,960	73,003	107,308	57,653	29,302	17,860	3.9	
Abkhazi.....	5,266	1,128	1,241	1,362	863	402	270	3.8	
Osetins.....	14,160	2,559	2,846	4,272	2,804	1,141	538	3.9	
Armenians.....	46,573	10,491	9,538	12,109	7,756	3,987	2,692	3.9	
Russians.....	59,979	23,130	16,396	13,375	4,573	1,744	761	3.1	
Azerbaijanis.....	8,002	1,015	1,151	1,634	1,685	1,244	1,273	4.8	
Families where members belong to different nationalities.....	93,716	18,400	21,506	24,981	14,374	7,781	6,674	4.0	
Rural population									
All Families.....	546,962	113,796	98,189	116,636	99,018	64,760	54,563	4.2	
Families where all members belong to one nationality.....	520,558	109,098	92,936	110,805	94,306	61,707	51,706	4.2	
Of the above, families where all members are:									
Georgians.....	398,344	87,658	73,487	88,034	71,969	44,399	32,797	4.1	
Abkhazi.....	9,719	1,617	1,492	1,732	1,687	1,423	1,768	4.7	
Osetins.....	15,578	4,182	2,759	2,808	2,802	1,867	1,160	4.0	
Armenians.....	37,661	5,578	6,043	8,112	8,027	5,560	4,341	4.5	
Russians.....	10,125	3,843	2,992	2,082	745	302	161	3.1	
Azerbaijanis.....	36,323	3,557	3,911	5,466	6,834	6,555	10,000	5.3	
Families where members belong to different nationalities.....	26,404	4,698	5,253	5,831	4,712	3,053	2,857	4.3	

	Number of Families	In Particular Families Consisting of The Following Living Together:							Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People		
Azerbaijan SSR									
Urban and rural population									
All Families.....									
Families where all members belong to one nationality.....									
Of the above, families where all members are:									
Azerbaijanis.....									
Armenians.....									
Russians.....									
Lezgins.....									
Families where members belong to different nationalities.....									
Urban population									
All Families.....									
Families where all members belong to one nationality.....									
Of the above, families where all members are:									
Azerbaijanis.....									
Armenians.....									
Russians.....									
Lezgins.....									
Families where members belong to different nationalities.....									



	Number of Families	In Particular Families Consisting of The Following Living Together:							Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People		
Rural population									
All Families.....	475,751	55,835	49,863	58,211	63,973	67,535	180,334	5.8	
Families where all members belong to one nationality.....	467,449	54,959	48,760	57,022	62,750	66,356	177,602	5.8	
Of the above, families where all members are:									
Azerbaijanis.....	411,168	43,555	40,734	48,806	54,348	58,871	164,854	5.9	
Armenians.....	24,302	6,118	3,785	3,740	3,877	3,252	3,530	4.3	
Russians.....	5,567	2,148	1,205	915	600	364	335	3.5	
Lezgins.....	15,145	1,650	1,649	1,964	2,190	2,257	5,435	5.6	
Families where members belong to different nationalities.....	8,302	876	1,103	1,189	1,223	1,179	2,732	5.6	
Lithuanian SSR									
Urban and rural population									
All Families.....	901,044	286,928	262,989	228,594	82,117	26,357	14,059	3.3	
Families where all members belong to one nationality.....	799,040	265,427	229,233	197,853	71,475	22,958	12,094	3.3	
Of the above, families where all members are:									
Lithuanians.....	683,249	225,430	193,848	170,615	62,604	20,178	10,574	3.3	
Russians.....	53,356	19,103	18,234	11,998	2,942	765	314	3.0	
Poles.....	48,506	15,885	12,846	11,915	5,069	1,783	1,008	3.3	
Belorussians.....	6,349	2,198	1,943	1,648	433	84	43	3.1	
Families where members belong to different nationalities.....	102,004	21,501	33,756	30,741	10,642	3,399	1,965	3.5	

	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Urban population							
All Families.....	535,425	151,754	172,229	151,368	43,881	11,458	4,735
Families where all members belong to one nationality.....	453,969	134,687	144,111	126,400	36,110	9,169	3,492
Of the above, families where all members are:							
Lithuanians.....	376,009	108,396	118,115	107,185	31,283	8,034	2,996
Russians.....	46,740	16,364	16,354	10,789	2,441	583	209
Poles.....	19,444	5,650	5,910	5,594	1,715	402	173
Belorussians.....	5,051	1,788	1,578	1,332	298	39	16
Families where members belong to different nationalities.....	81,456	17,067	28,118	24,968	7,771	2,289	1,243
Rural population							
All Families.....	365,619	135,174	90,760	77,226	38,236	14,899	9,324
Families where all members belong to one nationality.....	345,071	130,740	85,122	71,453	35,365	13,789	8,602
Of the above, families where all members are:							
Lithuanians.....	307,240	117,034	75,733	63,430	31,321	12,144	7,578
Russians.....	6,616	2,739	1,880	1,209	501	182	105
Poles.....	29,062	10,235	6,936	6,321	3,354	1,381	835
Belorussians.....	1,298	410	365	316	135	45	27
Families where members belong to different nationalities.....	20,548	4,434	5,638	5,773	2,871	1,110	722

	Number of Families	In Particular Families Consisting of The Following Living Together:							Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People		
Moldavian SSR									
Urban and rural population									
All Families.....	1,024,397	315,270	289,027	236,823	101,266	44,298	37,713	3.4	
Families where all members belong to one nationality.....	809,627	263,346	218,102	177,812	80,559	36,970	32,838	3.4	
Of the above, families where all members are:									
Moldavians.....	569,266	174,345	147,283	127,124	63,121	29,936	27,457	3.5	
Ukrainians.....	96,723	38,742	28,018	20,832	6,192	1,874	1,065	3.1	
Russians.....	78,568	31,108	26,199	16,051	3,836	968	406	3.0	
Gagauzi.....	24,999	4,854	5,143	5,630	3,914	2,580	2,878	4.2	
Bulgars.....	12,744	3,488	3,073	2,927	1,768	987	501	3.6	
Families where members belong to different nationalities.....	214,770	51,924	70,925	59,011	20,707	7,328	4,875	3.4	
Urban population									
All Families.....	399,857	120,031	136,193	101,008	28,451	8,770	5,404	3.2	
Families where all members belong to one nationality.....	255,827	85,372	84,697	60,303	16,754	5,314	3,387	3.2	
Of the above, families where all members are:									
Moldavians.....	106,020	29,978	35,605	27,726	8,247	2,668	1,796	3.3	
Ukrainians.....	44,833	15,773	15,106	11,033	2,236	475	210	3.0	
Russians.....	67,480	26,646	23,104	13,728	3,042	694	266	2.9	
Gagauzi.....	8,655	1,881	2,028	2,114	1,279	740	613	3.9	
Bulgars.....	3,462	927	889	836	439	242	129	3.6	
Families where members belong to different nationalities.....	144,030	34,659	51,496	40,705	11,697	3,456	2,017	3.3	

	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Rural population							
All Families.....	624,540	195,239	152,834	135,815	72,815	35,528	32,309
Families where all members belong to one nationality.....	553,800	177,974	133,405	117,509	63,805	31,656	29,451
Of the above, families where all members are:							
Moldavians.....	463,246	144,367	111,678	99,398	54,874	27,268	25,661
Ukrainians.....	51,890	22,969	12,912	9,799	3,956	1,399	855
Russians.....	11,088	4,462	3,095	2,323	794	274	140
Gagauri.....	16,344	2,973	3,115	3,516	2,635	1,840	2,265
Bolgars.....	9,282	2,561	2,184	2,091	1,329	745	372
Families where members belong to different nationalities.....	70,740	17,265	19,429	18,306	9,010	3,872	2,858
Latvian SSR							
Urban and rural population							
All Families.....	685,137	250,061	217,261	149,647	48,315	13,413	6,440
Families where all members belong to one nationality.....	519,420	207,164	159,524	105,909	33,498	9,105	4,220
Of the above, families where all members are:							
Latvians.....	316,961	129,334	90,443	65,276	22,717	6,306	2,885
Russians.....	163,007	61,615	57,239	32,655	8,468	2,166	864
Belorussians.....	13,244	5,061	4,093	2,910	851	228	101
Ukrainians.....	5,827	2,086	2,033	1,414	231	51	12
Poles.....	6,623	3,490	1,734	1,003	309	55	32
Lithuanians.....	4,867	2,178	1,218	906	355	109	101
Families where members belong to different nationalities.....	165,717	42,897	57,737	43,738	14,817	4,308	2,220



	Number of Families	In Particular Families Consisting of The Following Living Together:						Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People	
Urban population								
All Families.....	467,280	162,816	159,001	105,041	30,085	7,375	2,962	3.1
Families where all members belong to one nationality.....	340,671	130,292	112,603	71,683	19,799	4,578	1,716	3.0
Of the above, families where all members are:								
Latvians.....	176,179	68,511	54,018	38,176	11,753	2,742	979	3.0
Russians.....	136,931	50,670	49,725	27,767	6,692	1,541	536	3.0
Belorussians.....	7,907	2,855	2,738	1,828	410	61	15	3.0
Ukrainians.....	4,952	1,828	1,757	1,173	161	29	4	3.0
Poles.....	4,442	2,280	1,230	713	184	28	7	2.8
Lithuanians.....	1,962	947	513	387	88	14	13	2.9
Families where members belong to different nationalities.....	126,609	32,524	46,398	33,358	10,286	2,797	1,246	3.3
Rural population								
All Families.....	217,857	87,245	58,260	44,606	18,230	6,038	3,478	3.1
Families where all members belong to one nationality.....	178,749	76,872	46,921	34,226	13,699	4,527	2,504	3.1
Of the above, families where all members are:								
Latvians.....	140,782	60,823	36,425	27,100	10,964	3,564	1,906	3.1
Russians.....	26,076	10,945	7,514	4,888	1,776	625	328	3.0
Belorussians.....	5,337	2,206	1,355	1,082	441	167	86	3.1
Ukrainians.....	875	258	276	241	70	22	8	3.3
Poles.....	2,181	1,210	504	290	125	27	25	2.8
Lithuanians.....	2,905	1,231	705	519	267	95	88	3.2
Families where members belong to different nationalities.....	39,108	10,373	11,339	10,380	4,531	1,511	974	3.5

	Number of Families	In Particular Families Consisting of The Following Living Together:						Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People	
Kirghiz SSR								
Urban and rural population								
All Families.....	702,678	131,866	141,080	137,824	88,135	61,415	142,358	4.6
Families where all members belong to one nationality.....	594,054	111,171	114,035	110,543	73,068	53,764	131,473	4.7
Of the above, families where all members are:								
Kirghiz.....	267,672	28,111	34,104	38,662	37,554	34,508	94,733	5.7
Russians.....	197,489	59,555	59,397	50,246	19,004	5,917	2,970	3.3
Uzbeks.....	60,440	5,697	5,926	7,478	8,030	8,179	25,130	6.1
Ukrainians.....	12,528	6,008	3,238	2,172	761	240	109	2.9
Tatars.....	12,309	3,240	3,280	3,122	1,569	694	404	3.6
Families where members belong to different nationalities.....	108,624	20,695	27,045	27,281	15,067	7,651	10,885	4.1
Urban population								
All Families.....	306,285	73,742	80,257	73,218	35,722	17,947	25,399	3.8
Families where all members belong to one nationality.....	240,232	60,237	62,019	55,342	26,981	14,148	21,505	3.9
Of the above, families where all members are:								
Kirghiz.....	45,517	6,266	7,310	8,710	7,605	5,709	9,417	4.8
Russians.....	138,226	42,078	43,027	35,555	12,293	3,504	1,769	3.3
Uzbeks.....	21,709	2,309	2,537	3,132	3,036	2,955	7,740	5.7
Ukrainians.....	6,531	2,878	1,941	1,275	325	75	37	2.9
Tatars.....	10,533	2,795	2,870	2,698	1,314	549	307	3.5
Families where members belong to different nationalities.....	66,053	13,505	18,238	17,876	8,741	3,799	3,894	3.8

	Number of Families	In Particular Families Consisting of The Following Living Together:						Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People	
Rural population								
All Families.....	396,393	58,124	60,823	64,606	52,413	43,468	116,959	5.3
Families where all members belong to one nationality.....	353,822	50,934	52,016	55,201	46,087	39,616	109,968	5.3
Of the above, families where all members are:								
Kirghiz.....	222,155	21,845	26,294	29,952	29,949	28,799	85,316	5.8
Russians.....	59,263	17,877	16,370	14,691	6,711	2,413	1,201	3.4
Uzbeks.....	38,731	3,388	3,389	4,346	4,994	5,224	17,390	6.3
Ukrainians.....	5,997	3,130	1,297	897	436	165	72	2.9
Tatars.....	1,776	445	410	424	255	145	97	3.8
Families where members belong to different nationalities.....	42,571	7,190	8,807	9,405	6,326	3,852	6,991	4.5
Tajik SSR								
Urban and rural population								
All Families.....	636,402	83,106	89,695	95,996	75,704	66,085	225,816	5.7
Families where all members belong to one nationality.....	553,357	70,462	72,131	77,051	64,368	59,217	210,128	5.8
Of the above, families where all members are:								
Tajiks.....	306,969	23,732	26,171	32,310	36,397	38,474	149,885	6.6
Uzbeks.....	119,204	10,241	11,132	14,048	14,894	15,305	53,584	6.3
Russians.....	83,622	26,697	25,494	21,043	7,259	2,159	970	3.2
Tatars.....	13,910	3,632	3,652	3,578	1,826	738	484	3.6
Kirghiz.....	7,202	689	891	1,036	895	930	2,761	5.8
Families where members belong to different nationalities.....	83,045	12,644	17,564	18,945	11,336	6,868	15,688	4.7

	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Urban population							
All Families.....	265,978	53,648	57,559	56,782	32,331	20,154	45,504
Families where all members belong to one nationality.....	204,630	42,888	42,377	40,707	23,770	15,904	38,984
Of the above, families where all members are:							
Tajiks.....	74,197	7,124	7,993	9,958	9,966	9,650	29,506
Uzbeks.....	18,753	1,947	2,256	2,752	2,622	2,335	6,841
Russians.....	79,757	25,483	24,377	20,101	6,870	2,027	899
Ukrainians.....	12,835	3,378	3,426	3,334	1,661	636	400
Tatars.....	825	73	101	141	95	108	307
Families where members belong to different nationalities.....	61,348	10,760	15,182	16,075	8,561	4,250	6,520
Rural population							
All Families.....	370,424	29,458	32,136	39,214	43,373	45,931	180,312
Families where all members belong to one nationality.....	348,727	27,574	29,754	36,344	40,598	43,313	171,144
Of the above, families where all members are:							
Tajiks.....	232,772	16,608	18,178	22,352	26,431	28,824	120,379
Uzbeks.....	100,451	8,294	8,876	11,296	12,272	12,970	46,743
Russians.....	3,865	1,214	1,117	942	389	132	71
Tatars.....	1,075	254	226	244	165	102	84
Kirghiz.....	6,377	616	790	895	800	822	2,454
Families where members belong to different nationalities.....	21,697	1,884	2,382	2,870	2,775	2,618	9,168
							6.2



	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Armenian SSR							
Urban and rural population							
All families.....	609,372	74,471	85,267	140,926	125,329	91,462	91,917
Families where all members belong to one nationality.....	585,001	71,601	80,944	134,511	120,876	88,539	88,530
Of the above, families where all members are:							
Armenians.....	537,961	64,692	74,212	126,763	114,537	82,543	75,214
Azerbaijanis.....	26,378	2,715	2,646	3,322	3,790	4,239	9,666
Russians.....	10,726	3,143	2,910	2,847	1,070	466	290
Gypsies.....	7,247	483	584	899	1,082	1,044	3,155
Families where members belong to 4 or more nationalities.....	24,371	2,870	4,323	6,415	4,453	2,924	3,387
Urban population							
All families.....	415,129	52,665	63,181	108,886	88,266	58,036	44,195
Families where all members belong to one nationality.....	395,078	50,195	59,402	103,176	84,548	55,713	42,044
Of the above, families where all members are:							
Armenians.....	379,584	46,723	55,892	99,327	82,568	54,436	40,638
Azerbaijanis.....	2,776	382	387	502	510	462	533
Russians.....	9,078	2,557	2,484	2,538	905	386	208
Gypsies.....	1,617	126	163	262	274	251	541
Families where members belong to different nationalities.....	20,151	2,470	3,779	5,710	3,718	2,323	2,151

	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Rural population:							
All families.....	144,143	21,806	22,086	32,060	37,063	33,426	47,722
Families where all members belong to one nationality.....	189,923	21,406	21,542	31,135	36,128	32,826	46,486
Of the above, families where all members are:							
Armenians.....	158,377	17,869	18,320	27,436	31,969	28,107	34,576
Armenians.....	23,602	2,333	2,259	2,820	3,280	3,777	9,133
Russians.....	1,648	586	426	309	165	80	82
Kurds.....	5,630	357	421	637	808	793	2,614
Families where members belong to different nationalities.....	9,220	400	544	705	735	600	1,236
Urban and rural population:							
All families.....	475,111	65,753	72,969	76,804	56,876	48,796	153,913
Families where all members belong to one nationality.....	416,747	55,836	58,998	62,258	49,013	44,424	146,238
Of the above, families where all members are:							
Turkmen.....	275,655	23,631	26,605	32,608	34,412	35,235	123,164
Russians.....	73,909	23,411	22,654	18,840	6,189	1,942	873
Tatars.....	29,967	2,324	2,656	3,268	3,550	3,848	14,321
Karakas.....	11,426	882	1,175	1,539	1,509	1,458	4,863
Tatars.....	5,689	1,548	1,623	1,433	772	333	180
Families where members belong to different nationalities.....	58,364	9,917	13,971	14,546	7,863	4,372	7,675

	Number of Families	In Particular Families Consisting of The Following Living Together:						Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People	
Urban population								
All Families.....	257,336	47,407	52,940	52,961	31,333	21,872	50,823	4.6
Families where all members belong to one nationality.....	206,244	38,247	39,966	39,545	24,434	18,365	45,690	4.8
Of the above, families where all members are:								
Turkmen.....	89,059	8,226	9,930	12,623	12,419	11,938	33,923	5.9
Russians.....	72,048	22,646	22,244	18,348	6,058	1,905	847	3.2
Uzbeks.....	16,043	1,436	1,723	2,067	2,062	2,078	6,677	6.1
Karakahs.....	7,453	617	868	1,104	1,036	971	2,857	5.9
Tatars.....	5,411	1,474	1,350	1,377	741	313	156	3.6
Families where members belong to different nationalities.....	51,092	9,160	12,974	13,416	6,902	3,507	5,133	4.1
Rural population								
All Families.....	217,775	18,346	20,029	23,843	25,543	26,924	103,090	6.5
Families where all members belong to one nationality.....	210,523	17,589	19,032	22,713	24,582	26,059	100,548	6.5
Of the above, families where all members are:								
Turkmen.....	186,596	15,405	16,675	19,985	21,993	23,297	89,241	6.5
Russians.....	1,861	565	610	492	131	37	26	3.2
Uzbeks.....	13,924	888	933	1,201	1,488	1,770	7,644	7.0
Karakahs.....	3,973	265	307	435	473	487	2,006	6.7
Tatars.....	278	74	73	56	31	20	24	3.8
Families where members belong to different nationalities.....	7,252	757	997	1,130	961	865	2,542	5.8

	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Estonian SSR							
Urban and rural population							
All Families.....	394,425	144,795	121,672	90,845	26,984	6,917	3,212
Families where all members belong to one nationality.....	332,228	128,437	100,067	73,877	21,759	5,530	2,558
Of the above, families where all members are:							
Estonians.....	235,180	95,087	64,852	51,946	16,796	4,433	2,066
Russians.....	86,848	29,423	31,964	19,619	4,477	975	390
Ukrainians.....	3,290	1,013	1,181	886	158	25	27
Belorussians.....	2,392	753	827	658	131	20	3
Families where members belong to different nationalities.....	62,197	16,358	21,605	16,968	5,225	1,387	654
Urban population							
All Families.....	278,224	96,437	91,960	66,687	17,542	3,992	1,606
Families where all members belong to one nationality.....	226,460	83,090	73,444	52,394	13,389	2,979	1,164
Of the above, families where all members are:							
Estonians.....	137,874	52,980	40,955	32,240	8,913	2,024	762
Russians.....	80,265	26,982	29,777	18,203	4,092	871	340
Ukrainians.....	2,759	860	994	742	125	20	18
Belorussians.....	2,204	698	758	611	120	15	2
Families where members belong to different nationalities.....	51,764	13,347	18,516	14,293	4,153	1,013	442



	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Rural population							
All Families.....	116,201	48,358	29,712	24,158	9,442	2,925	1,606
Families where all members belong to one nationality.....	105,768	45,347	26,623	21,483	8,370	2,551	1,394
Of the above, families where all members are:							
Estonians.....	97,306	42,107	23,897	19,706	7,883	2,409	1,304
Russians.....	6,583	2,441	2,187	1,416	385	104	50
Ukrainians.....	531	153	187	144	33	5	9
Belorussians.....	188	55	69	47	11	5	1
Families where members belong to different nationalities.....	10,433	3,011	3,089	2,675	1,072	374	212
							3.4
							3.1
							3.1
							3.1
							3.0
							3.2
							3.2

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# **USSR Report**

**HUMAN RESOURCES**

**No. 101**

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25 November 1983

# USSR REPORT HUMAN RESOURCES

No. 101

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## LABOR

### LABOR EXPERTS EXAMINE CURRENT SUPPLEMENTARY PAY SYSTEM

Moscow SOTSIALISTICHESKIY TRUD in Russian No 5, May 83 pp 53-63

[Article by L. Kheyfets, sector chief at the Scientific Research Institute of Labor, and senior associate L. Sushkina: "Increasing the Role of Supplemental Wages As Incentives"]

[Text] Heightening the material interest of workers and employees in achieving high results for their labor is an important factor in successfully resolving the economic tasks of the current five-year plan. The November (1982) CPSU Central Committee Plenum pointed out the necessity of creating economic and organizational conditions which would "stimulate quality, productive labor, initiative and entrepreneurship."<sup>1</sup> One such condition anticipates the more effective use of supplements to wage rates and salaries for combining occupations, increasing the amount of work done, occupational skill and high worker qualifications. Broad opportunities for using these progressive forms of stimulation were set by the CPSU Central Committee and USSR Council of Ministers decree of 12 July 1979 "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Improving Production Efficiency and Work Quality."

A study of current practice and a statistical analysis made by the Scientific Research Institute of Labor and its branches have shown that additions (supplements) to wage rates and salaries have basically been successful in their role as material incentives. At the same time, quite a few negative factors were revealed in the dissemination and use of these forms of encouragement.

Improvement in the practical application of all types of additional wages must be based on a number of common provisions characterizing their essence and functional purpose. It should be noted first of all that additional wages, as a reward for labor, raise the level of objectivity of wage differentiation for workers in a single category or the same position concerning their personal labor contributions. They are established for workers who are highly skilled, creating a material interest in continuous occupational skills growth and the display of high work standards.

Wage additions provide an opportunity to use positive features of piece-rate wages in time-rate wages, that is, to create a direct dependence between the

<sup>1</sup>"Materialy Plenuma Tsentral'nogo Komiteta KPSS. 22 noyabrya 1982 g." [Materials of the 22 November 1982 CPSU Central Committee Plenum], Moscow, Politizdat, 1982, p 9.

wages of a time-rate worker and the savings in live labor based on performance of work with the fewest personnel. The use of additions to wage rates and salaries is inseparably linked to the more effective use of labor resources. Given the critical demographic situation, the growing demands for manpower will be met primarily through the freeing of personnel at existing enterprises. At the same time, strengthening the stimulus role of the rate system and establishing a greater dependence between wage rate and actual labor contribution will unquestionably help to secure personnel at enterprises as well.

The broader use of wage supplements will also help improve labor rate-setting, inasmuch as the availability of progressive, technically substantiated labor expenditure norms is a necessary condition for their effective use. The introduction of this form of incentives for highly productive labor is also aimed at broadening enterprise independence and initiative under centralized leadership, as well as at heightening the personal responsibility of economic leaders for state plan fulfillment.

The basic function of wage supplements is to ensure the recording of individual labor differences resulting from the qualifications, educational level, intensiveness of labor and level of labor productivity achieved by workers. Based on the economic purpose of the supplements, they should be viewed as an independent element of wages, occupying an intermediate position between the rate system and bonus payments.

A bonus is generally paid for fulfilling or overfulfilling one or several indicators describing the labor of a worker or collective and generally paid periodically: once a month, once a quarter, and so on. But a supplement is established for relatively stable, high labor results achieved on the basis of improvement in skill or performance of work involving the combining of occupations.

As distinct from rates, supplements are not an obligatory or constant element of wages. An increase in the amount of a supplement depends primarily on growth in the individual labor productivity of a particular worker and in his contribution to collective results. The establishment of a supplement does not require approval by a qualifications commission, and supplements are not taken into account when setting piece-work rates.

But it is important to stress in this regard that a supplement must not be instituted "for all time." One for whom one is established is obligated to confirm, by daily labor, his right to receive it. If work indicators deteriorate, supplements can not only be lowered in amount, but can even be rescinded entirely under article 53 of the decree on perfecting the economic mechanism and other normative documents.

#### Stimuli to Combining Occupations and Positions

The most widespread of the progressive forms of incentives are additional payments to workers, engineering-technical personnel and employees for combining occupations and positions. This type of additional payment is one element in the Shchekino method and can be used either independently or in combination with measures to perfect labor organization and planning. The importance of

this form of incentives has increased as a result of the increase in the maximum amount of the supplemental wage to workers from 30 to 50 percent of their rate. It has received further development in connection with the issuance of the 4 December 1981 USSR Council of Ministers decree "On Procedures and Conditions for Combining Occupations (Positions)."

Additional payments for combining occupations, including performing jobs with the fewest personnel, have become a permanent element in wage organization in a majority of the branches. It does not follow from this, of course, that the question of extending and improving this system of incentives has already been resolved. We must popularize leading experience to achieve the universal use of additional payments to create interest in combining occupations (positions) and saving live labor on the basis of freeing personnel. There is much that is instructive in this regard at the "Azot" production association imeni V. I. Lenin in Novomoskovsk, the Tula Machinebuilding Plant imeni Ryabikov, the "Bashneftekhimzavody," "AvtoKRAZ" and "Moskovskiy elektrolampovyy zavod" associations, ships of the Sakhalin Steamship Line, and sovkhoses of the Animal Husbandry Main Administration of the USSR Ministry of Agriculture.

Shchekino experience in stimulating the combining of occupations is being used in industry at enterprises concentrating 56 percent of all production personnel. But this is by no means the limit. Let us assume that practically every enterprise has an opportunity to organize combined occupations based on additional payments for wage fund savings as a result of the freeing of workers for other jobs.

The greatest impact from using additional payments has been achieved at enterprises operating comprehensively under the Shchekino method. Thus, the "Khlorvinil" production association in Kalushskoye, which has used the Shchekino experience creatively, was able to raise labor productivity more than 1.5-fold during the 10th Five-Year Plan. The "Polimir" production association imeni 50th anniversary of the BSSR has made a substantial contribution to developing the Shchekino method. By making extensive use of the system of additional payments, it has created material interest among workers in introducing collective servicing of the entire technological process. Thanks to this, the collective carried out the 10th Five-Year Plan assignment in four years.

In recent years, additional payments for combining occupations and performing work with the fewest personnel have been disseminated most widely at enterprises and organizations in communications, public health, physical education, social security, housing, municipal and personal services. In these branches of the national economy, the use of additional payments for combining occupations is somewhat broader in scope than it is in industry, transport and trade. Unfortunately, the proportion of workers receiving additional payments is still low at enterprises and organizations of agriculture, construction, culture and public education. In our opinion, these branches also have reserves for combining occupations which could be stimulated through the use of appropriate additional payments.

In industry, additional payments to workers for combining occupations are most widespread in such branches as oil refining, ferrous metallurgy (especially ore mining and enrichment), electric power engineering and several others in which



the proportion of time-rate workers is comparatively high. According to our calculations, not less than 12 percent of the time-rate workers in industry receive additional payments for combining occupations.

This particular type of material stimulation of labor is least characteristic of coal, lumber, wood-processing, pulp-paper and light industry.

The stimulation of combined occupations (positions) is currently characteristic primarily of workers and employees. As concerns engineering-technical personnel, we should point out that they are inadequately covered by this type of material incentives. According to our calculations, which were made separately for each category of personnel, the proportion of engineering-technical workers receiving additional payments for combining positions is lower than the proportion of workers receiving similar additional payments in industry -- three to four times lower -- and more than five times lower in machinebuilding. The situation is similar in other branches as well. All this is to be explained in considerable measure by the features of rate-setting for the labor of engineering-technical workers. The absence of labor expenditure norms or use of consolidated normatives which offer no possibility of determining sufficiently precisely the work volume of an engineering-technical worker hinders the organization of combined positions. This applies in a lesser degree to the labor of employees, many of whom are performing relatively simple and often repetitive functions. The successes achieved in recent years in the field of rate-setting primarily for mental labor will permit, one can assume, a more substantiated determination in the near future of the work volume and the opportunities for combining positions among engineering-technical workers. Under these conditions, the role of additional payments on the salaries of engineering-technical workers in the system for stimulating their labor must increase.

As the results of surveys have shown, additional payments average from 22 rubles per person (in industry) to 30 rubles per person (in public education) per month. Additional payments are thus becoming quite a substantial addition to the wages of various categories of workers. However, the question of the amounts by which the additional payments are differentiated is not always resolved correctly. In industry, for example, engineering-technical workers have unjustifiably lower additional payments for combining occupations and performing work with the fewest personnel than do workers and employees. Thus, in machinebuilding and metalworking, the average amount of the wage supplements to engineering-technical workers is approximately five percent lower than for employees and 10 percent lower than for workers. It is generally engineering-technical workers who are not in the leading specialist categories who combine occupations. In the opinion of many leaders, no special delineation, in terms of wages, should be made for those engineering-technical workers who combine positions in these instances. However, in such situations we should avoid extremes and not set additional payments in amounts below the "threshold of perception" (which is 10-15 rubles, in our view), which could reduce to naught interest in combining positions and freeing surplus personnel.

Considerable work on disseminating the system of stimulating combined occupations (positions) is being done in a regional cross-section. According to data from the Belorussian branch of the Scientific Research Institute of Labor, a large number of workers are freed for other work each year in Belorussian

industry and, at the same time, the number of workers and employees for whom additional payments are being established is increasing (see Table).

Indicators	1978	1979	1980
1. number of workers freed, total	7,378	7,316	6,377
including:			
workers	7,107	7,040	6,116
engineering-technical personnel	210	213	212
2. wage fund savings obtained as a result of the freeing of workers, in 1,000 rubles	8,203.3	8,075.2	8,329.4
including that spent on additional payments, total	2,613.6	2,776.1	3,368.0
workers	2,443.7	2,634.8	2,946.4
engineering-technical personnel	34.9	74.2	130.9
3. number of workers receiving additional payments, total	17,902	25,461	31,143
including:			
workers	16,786	24,529	29,787
engineering-technical personnel	373	558	845

Much organizational work facilitated this. Commissions were created in the republic ministries consisting of chief specialists and administration chiefs under the leadership of the ministers or their deputies; their task -- coordinate activity on implementing measures ensuring fulfillment of the decree on perfecting the economic mechanism. Methods recommendations on using the new forms of material incentives were communicated to the subordinate departmental associations and enterprises. At the same time, conferences, meetings and seminars were held to publicize them; participating in them were association and enterprise leaders and specialists, both for the branch as a whole and for individual subbranches, and including associates from branch scientific research institutes, laboratories and bureaus.

Among the enterprises which have actively stimulated the combining of occupations is the Minsk Motor Vehicles Plant, where 694 people have combined occupations and received corresponding additional payments. As a result, 287 people were freed to work in new production sectors. At the "Komsomolka" garment association and "Progress" textile association in Minsk, 58 and 183 people, respectively, are receiving additional payments for combining occupations and performing work with fewer personnel. As a result, 17 and 108 people, respectively, have been freed for other work.

Practices at ferrous metallurgy plants, where additional payments are the most widespread form of material incentives, would be a positive example of the use of additional payments for combining occupations at UkSSR enterprises. According to data from the Ukrainian branch of the Scientific Research Institute for Labor, the proportion of workers combining occupations increased, by number for all enterprises of the UkSSR Ministry of Ferrous Metallurgy, from 14.9 to 28.4 percent from 1976 through 1981, that is, nearly doubled. Additional payments for combining occupations and performing work with fewer personnel are the most widespread form of material incentives at the Voroshilovgrad Pipe Plant imeni

Yakubovskiy. In 1981, the number of workers receiving supplemental pay for combining occupations was 462, or 24.1 percent of the total. Whereas additional payments for combining occupations often stimulate making up the shortage of workers in certain occupations in a number of branches, the actual freeing of workers is generally the basis for broadening the sphere of combining occupations at enterprises of UkSSR ferrous metallurgy.

This form of material incentives has also been widely used at enterprises in other union republics. Thus, about 300 workers were receiving additional payments for combining occupations at the Alma-Ata Cotton Combine in 1980. At the Dushanbe Baking Production Association, the number of workers receiving supplemental pay increased by 42 from 1978 to 1980. In 1981, additional payments for combining occupations were established for 235 persons at the Vladivostok Porcelain Production Association.

At the same time, a study of practical material stimulation of combining occupations, broadening service spheres and increasing work volume has shown that a number of ministries and production associations have been little concerned with these questions. For example, the number of enterprises adopting the system of additional payments for combining occupations actually decreased in 1981 as compared with 1980 in the USSR Ministry of Meat and Dairy Industry. Work on freeing workers and establishing additional payments for combining occupations has been unsatisfactory at enterprises of the Ministry of Building Materials Industry, Ministry of Food Industry and a number of other ministries of the Uzbek SSR.

Even before the decree on perfecting the economic mechanism was adopted, the press repeatedly posed the question of the reasons for the slow dissemination of the system of stimulating combining occupations. The universal use of so effective a form of material encouragement of highly productive labor was retarded by the absence of enterprise normatives on staff and stable wage fund plans, as well as by the inadequate attention paid by economic leaders to carrying out organizational-technical measures to free workers. One reason for the inadequate use of the rights regarding the use of additional payments for combining occupations (positions) is the fear that the wage fund will be reduced after they have been established for an enterprise. Certain enterprises and associations, in chemical industry in particular, have turned out to be in this situation.

There are examples of a formal approach to the use of additional payments. In individual instances, they have been set for a very limited amount of work in the combined occupation, without consideration of the actual worker load, and so on. Such additional payments lose their importance as incentives and are transformed into a hidden form of "hauling up" the wage levels for individual categories of workers. The insignificant amount of the supplemental pay is another cause of the delay in their broad use, inasmuch as it does not create interest in combining occupations and performing work with fewer personnel. Thus, the average amount of the supplemental pay for workers at the Irkutsk Garment Association was less than five percent of their wages in 1981. As concerns increasing the limits on additional payments to 50 percent, there must be strict accounting of the actual load on those who are combining occupations when this is done.



In the near future, we need to link the additional payments system more closely to the wage rates of workers with a brigade form of organizing and stimulating labor, to ensure a substantial broadening of the scope of combining occupations among both time-rate and piece-rate workers.

In our opinion, in the first instance, the additional payment must be established for those brigade members who are actually combining occupations. And if it is impossible to single out the personal contributions of the workers in terms of combining occupations, the additional payment must be included in the total brigade wage. In the second instance, the question of the possibility of using these additional payments in brigades consisting of piece-rate workers should be decided differently. The fact is that the piece-rate form of wages in and of itself stimulated performing work with fewer people (both when occupations are combined and when they are not) and ensures an increase in wages when output norms are overfulfilled. It would hardly be appropriate under these conditions to pay a brigade or its individual members additionally for combining occupations.

It is important to note one other feature of combining occupations within the framework of the brigade form of labor organization. Material encouragement for performing work with fewer personnel is more effective in brigades than for other forms of labor cooperation. As a rule, when a worker leaves a brigade, it becomes necessary to redistribute his duties among other members of the collective. The effort to carry out an assignment in full creates an interest in effective replacement of a worker who has left or performance of his work by others. The second way is the more feasible and ensures an increase in wages in accordance with the amount of additional work.

#### Use of Supplemental Pay for Professional Skill

A new form of material incentives -- supplemental pay to skilled workers employed at particularly responsible jobs for a high level of occupational skill -- has yet to receive adequate dissemination. Nonetheless, it should be noted that introduction of this form of material encouragement has become more active recently in tractor, agricultural, road-construction and municipal-services machinebuilding, garment, leather-fur, oil refining, shale, peat and petroleum extraction industry. The average amount of the additional payment to workers for occupational skill is generally 10-11 rubles. The proportion of those receiving this supplemental pay does not exceed one percent of the total number of time-rate workers. At the same time, the indicators vary substantially by individual branch and enterprise. The proportion of workers receiving supplemental pay is approximately four times higher at enterprises of light industry than at enterprises of ferrous metallurgy, building materials and food industry. The lowest percentage of time-rate workers by this particular form of incentives is at enterprises of chemical industry. This state of affairs in the branch deserves a negative evaluation, inasmuch as there are many time-rate workers at chemical enterprises for whom supplemental pay for professional skill could be of great importance as an incentive.

The considerable differences in scope of application and average amounts of supplemental pay for professional skill cannot be explained just by branch specifics in labor and wage organization. A large role is also played by



subjective factors such as level of ministry and enterprise work on introducing progressive forms of material incentives.

The practical use of supplemental pay to workers for high professional skill presupposes the resolution of a number of questions connected foremost with the necessity of determining the range of jobs and occupations to which they could be extended, with developing precise criteria and indicators for instituting supplemental pay and the mechanism for differentiating them, as well as the procedures for establishing and rescinding additional payments. According to the USSR State Committee for Labor and Social Questions and AUCCTU clarification of 25 December 1979, the criteria for evaluating the level of worker professional skill are high-quality labor results, systematic fulfillment of output norms and normed assignments, strict observance of technological and production discipline, and combining related operations and occupations.

The establishment of supplemental pay for professional skill must be connected to strict adherence to the conditions formulated in this clarification. It goes without saying that such conditions must be concretized to the maximum with consideration of production-facility and enterprise features. In our opinion, the following should be taken into account when resolving the question of indicators for the payment of supplemental wages: quality job performance over a certain period (no defects, release of output on first demand, work with a personal stamp, attainment of a high work-quality coefficient, and so forth); systematic attainment of higher labor indicators than the average indicators for workers in the same occupation; periodic performance of work in a higher category than one's own; operating especially complex, unique equipment; term of employment in a specialty; performance of related operations or combining occupations; tutelage, assistance to young workers. The following might be conditions for establishing supplemental pay for professional skill: quite high theoretical knowledge, practical experience in a specialty, observance of labor and production discipline, high responsibility for performance of work entrusted to one. When establishing supplemental pay for a worker in a given occupation, it is recommended that consideration be given to two or three indicators, with a quantitative measure being mandatory for each level of supplemental pay.

At the "Elektrostal'" plant imeni I. F. Tevosyan near Moscow, supplemental pay for professional skill was in experimental use long before the issuance of the decree on perfecting the economic mechanism. Regulations indicating the concrete indicators which must be attained for the establishment of a corresponding supplement were prepared for workers in each occupation. For machine tool operators, for example, these indicators are: meeting output norms for the month which are higher than the occupation average, performing work without defects for a certain period, mandatory training of young workers by helping them master good habits and leading work methods, mastering other machine-tool operator specialties.

Additional payments for professional skill were widespread at the Minsk Refrigerator Plant. The basic indicators for setting level-1 supplements for workers, which are four percent, are: mastering at least 70 percent of the operations in the brigade, work with a personal stamp; for level-2 supplements (eight percent) -- mastering all operations in the brigade and work with a personal stamp for at least one year; for level-3 supplements (12 percent) -- mastering at least

50 percent of all operations in the shop and work with a personal stamp for two years. For workers in auxiliary production, the conditions for establishing a level-1 supplement are: mastering one related occupation or work on two types of machine tools, use of a personal stamp; second -- mastering two related occupations or work on three types of machine tools, work with a personal stamp for at least one year; third -- mastering three related occupations or work on four types of machine tools, work with a personal stamp for two consecutive years. Additional payments for professional skill are established for workers who have worked at the plant at least one year and are raised a maximum of once a year. Wage funds savings are the source for them.

At the Minsk Worsteds Combine, annual, quarterly or monthly output and quality assignments are set for the establishment of particular levels of supplements for skill. In this regard, the assignments are calculated based on branch service zones, technically substantiated output norms and work time, excluding all vacations. The assignment for level two or level three is generally set with a 10 and 20 percent increase, respectively, in the output assignment for level one and a five- to 10-percent increase over the planned assignment for grade. At the same time, length of employment at the enterprise is also taken into account.

An analysis of the practical use of supplemental pay to workers for professional skill testifies to the fact that there are a number of shortcomings in the use of this particular form of material incentives. For example, at the Ussuri Machinebuilding Plant, supplements for professional skill have been converted into a means of holding onto people who are beginning to leave the enterprise because of an inadequate workload. Supplements are also used for this purpose at several furniture enterprises in the Far East. At the Makeyevka Metallurgical Plant, the procedure for establishing supplements is very similar to payments for long service, since their amount depends only on length of employment in a shop in a given occupation. In 1980, when there was no wage fund savings because the production plan was not carried out, the material incentives fund was used to pay supplements. In our opinion, this cannot be considered an intelligent approach. In fact, length of employment is by no means always an indicator of growth in professional skill. Among those workers who do not have the necessary term of employment, there is less interest in improving skills. An payment of supplements from the material incentives fund does not correspond to the functional purpose of this economic incentives source. In individual instances, compensating for a lower wage rate, given substantiated growth in the norm, that is, "drawing" wages up to the level which has evolved, is the primary and sometimes the sole purpose for which the supplements are earmarked. Reduced requirements for establishing supplements are often permitted. In this regard, they are converted into a form for regulating wage growth and lose their role as incentives.

Broadening the scope of use of supplements for professional skill is not an end in itself. Their primary purpose is to stimulate labor productivity growth and the resolution of the most complex technical questions on a basis of increased worker skill. Supplements for professional skill are instituted, according to the decree on perfecting the economic mechanism, for skilled workers employed at particularly responsible jobs and who have achieved the highest labor results

for their occupations. We can assume that if this demand is met precisely, there is no possibility that such payments will be converted into a mechanical addition to wages. A list of the jobs and occupations in which the use of supplements for professional skill is appropriate and necessary should be determined in the branches and at the production facilities as a function of the specific features of each enterprise and the specific tasks facing them. At the same time, it would be incorrect to broaden artificially the range of such jobs, to institute supplements without foundation, that is, for the performance of one's customary duties.

In order to improve the practical use of supplements for professional skill, we should answer definitively the question, long skirted silently in the economic literature, of whether they are suitable for piece-rate wages. In our opinion, it is generally appropriate to use them to encourage time-rate workers. Piece-rate wages, even without supplements, are by their economic nature quite a flexible tool for evaluating the professional skill of a worker.

As follows from point 54 of the decree on perfecting the economic mechanism, supplements for professional skill can also be instituted for the brigade form of labor organization and wages, inasmuch as any form of labor organization provides the highly skilled worker with an opportunity to systematically achieve higher indicators than the averages for workers in the same occupation. However, attention must be paid to the fact that brigade wages are often distributed using a labor-participation coefficient which also gives some consideration to differences in worker professional skill. In this instance, when wages are distributed using a labor-participation coefficient, we do not think consideration should be given to indicators characterizing professional skill, so as to eliminate the possibility of double payment for the exact same indicators.

With a view towards treating additional material interest among time-rate workers at basic and auxiliary production facilities in attaining the highest labor results, supplements for professional skill could, in our opinion, be instituted for workers who are already receiving additional payments for combining occupations and performing work with fewer personnel. The legitimacy of such an approach is based as follows. Combining occupations means organization of the labor process for two or several occupations. But the performance of work in a combined occupation is not, in and of itself, a characteristic of one's level of skill. Professional skill means a new quality in the worker himself, one acquired in the course of his labor activity and which is reflected in the attainment of the highest results, in a creative approach to one's work, and so on. Consequently, the attainment of a high level of professional skill is possible for any occupation, regardless of whether or not occupations are combined. At the same time, it should be noted that if additional payments are instituted for combining occupations under particular production conditions, the "mastering" indicator, and generally the performance of work in related occupations and operations as well, cannot be used as the basic indicator when establishing supplements for occupational skill.<sup>1</sup> In other words, two types of incentives cannot be used for the exact same work indicator.

<sup>1</sup>For this indicator, see point 1 of the "Clarification of Procedures for Paying Wage Supplements to Skilled Workers in Particularly Important Jobs for High Professional Skill" (Approved by the USSR State Committee for Labor and Social Question and AUCCTU decree of 25 December 1979).



## Supplements for High Skill While Improving the Economic Mechanism

Broadening opportunities for using supplements to engineering-technical workers and employees for high skill is assuming particular importance. In accordance with the decree on perfecting the economic mechanism, their overall amount has been increased more than three-fold (from 0.3 to one percent of the wage fund). All management workers, including employees, have been granted an opportunity to obtain pay supplements. At the same time, the maximum amount of the supplement for designers and technologists, as the main conduits of scientific and technical progress at the enterprises, is raised from 30 to 50 percent of one's salary.

The data from surveys made by branches of the Scientific Research Institute for Labor testifies that this type of material incentives is becoming more widespread.

The practice of using supplements for high skill at the Vladivostok Porcelain Plant deserves a positive evaluation. The regulations developed there stipulate the criterion of high skill: higher or secondary special education for the position held; length of work in the specialty; quality performance of production assignments and attainment of high technical-economic indicators by the sector led. As compared with 1979, the number of engineering-technical workers and employees receiving corresponding supplements has risen more than 40 percent.

Unfortunately, in a number of instances, supplements are used basically to raise the wage level and improve ratios in the wages of workers in different position groups. Engineering-technical personnel pay supplements are often set for a certain position, but do not reflect an increase in the skill of a particular worker. At a majority of the enterprises surveyed, practically no use is made of the right to establish higher supplements for highly skilled designers and technologists (Alma-Ata Cotton Combine, Alma-Ata Fur Combine, Minsk Packing Plant, and others). There have been cases in which supplements for high skill have been established first of all not for foremen, but for shop chiefs and their deputies, for the chiefs of plant-management departments (Dushanbe's "Tadzhikgidroagregat" plant). At the same time, a more substantiated evaluation of the complexity and responsibility of the labor of supervisory and engineering-technical workers must be resolved foremost by improving the system for categorizing enterprises, shops and sectors when instituting new wage conditions. In order to avoid instances in which supplements for high skill are used primarily for a particular category of engineering-technical workers, we should institute in advance a procedure whereby a significant portion of the funds available at an enterprise for these purposes is directed first of all into material incentives for high skill to foremen and engineers in the various specialties.

A majority of the enterprises surveyed spend as before on supplemental payments, within the 0.3-percent wage fund limit. Only 12 of the 40 enterprises surveyed by the Belorussian branch of the Scientific Research Institute for Labor use additional payments for engineering-technical workers and employees using the one-percent wage fund limit now established for those payments.

In many cases, the supplement does not yield a sufficiently perceptible increase in wages. Thus, for example, the average monthly supplemental payment for high



skill to engineering-technical workers and employees at the Minsk Worsted Combines was 13 rubles, and 10 and nine rubles, respectively, at the "Komsomolka" garment association and the "Progress" textile association. Such supplement amounts naturally so little to stimulate increasing labor efficiency and the personal contribution of the worker to production activity results for this category of worker. At individual enterprises, no supplemental payments at all were made for high skill during the survey period (Irkutsk Garment Association, Angara Electrical Engineering Plant and others). In a majority of instances, this was to be explained by the absence of a wage fund savings. The responsibility for this is borne foremost by those association (enterprise) leaders who must ensure the efficient expenditure of wage funds. Many workers are insufficiently informed about the procedure for using the supplements and have not had an opportunity to convince themselves of the effectiveness of using them.

The attainment of a wage fund savings in order to establish all types of supplements for workers, engineering-technical personnel and employees depends not only on the enterprises, but also on the ministries. Wage fund planning methods and practices often fail to create in the production collective the proper interest in using supplements, inasmuch as they do not ensure a direct dependence between wage fund amount, labor productivity and production volume, either when drawing up the plan or when carrying it out.

Another reason for the inadequate use of supplements is the low level of economic work by enterprises in the area of wage organization and the absence of the necessary ministry assistance in solving these problems. As a result, the use of progressive forms of material encouragement is accessible primarily to the large enterprises with substantial economic services.

The use of supplements and additional payments must be fully "reimbursible" and must ensure improved production efficiency and work quality. Under modern conditions, dissemination of progressive forms of stimulation presupposes the purposeful use of wage funds. We must first of all strengthen their influence on increasing labor contribution to the results of collective production activity. Increased labor productivity and an improved ratio between its growth rate and wage growth rates can and must be the foremost result of the use of supplements and additional payments.

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## LABOR

### CONSTRUCTION LABOR PRODUCTIVITY PROBLEMS HIGHLIGHTED

#### Snags With Net Output

Moscow EKONOMICHESKAYA GAZETA in Russian No 35, Aug 83 p 9

[Article by R. Pelyachik, chief of the labor economics department of the Scientific Research Institute for the Construction Process of UkSSR Gosstroy and candidate of economic sciences: "The Soundness of the Indicator: Experience in Planning Labor Productivity and Wages in Construction"]

[Text] Experience in applying the adjusted normative net output indicator (NUChP) in planning labor productivity and wages indicates the constructive influence this indicator is having on the performance of construction and installation organizations. The new indicator has intensified their interest in activating production capacities and projects on schedule. For example, last year almost all construction organizations in UkSSR using the NUChP achieved a growth of sales of the marketed product of construction over the previous year and a reduction of unfinished construction work.

Organizations belonging to the Combine "Zaporozhzhilstroy" of UkSSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] and the Trusts "Yugozapadtransstroy" and "Mostostroy No 1" of USSR Mintransstroy [Ministry of Transport Construction] put into operation all the principal production capacities and projects.

Most organizations fulfilled planning targets for the rise of labor productivity calculated in terms of the NUChP and did not have an overexpenditure of the wage fund.

As experience is showing, the new indicator reacts more responsively to the level of organization of production and work, to uniformity in the pace of operations and in the delivery of projects, and to adherence to the technology for performing operations. For example, it was enough for the Zaporozhye Housing Construction Combine of UkSSR Mintyazhstroy to fall behind last year in creating the amount of partial housing construction in 1983 called for by the standard for difficulties to arise in fulfilling assignments for the rise of labor productivity in the first half of this year. This is a lesson learned.

## Objectivity of the Initial Data

An analysis shows that the capabilities of the NUCHP are not being fully utilized as yet, the effectiveness of its application is dropping because precise solutions have not been found for a number of problems. One of them is determining the NUCHP for the year preceding the transition to the new indicator (the base year). This is the most time-consuming and responsible job in the stage of preparation of construction organizations for the transition to planning labor productivity in terms of the NUCHP. And yet the result of that effort, alas, is very poor. Why?

The procedure in effect for determination of the NUCHP in the base year affords the possibility of setting too low the actual level of output during that year in order to guarantee easier fulfillment of targets in subsequent years. It is extremely difficult to monitor the quality of this work, since not uncommonly it is performed in very short periods of time, that is, in haste, often in the absence of the full range of plans and estimates in which the NUCHP is given separately or using estimates in which the NUCHP is extracted "by our own efforts."

These circumstances give rise to the natural question: Is there a need to extract the NUCHP from the estimated cost of work in the base year? Or is it possible to do without that time-consuming work? Now that construction organizations are preparing for transition to the new estimate norms and prices, the urgency of this issue is becoming more acute.

In our view, it is still possible to do without extracting the NUCHP in the base year. In this case the preparatory work is made substantially easier, and construction organizations will have an opportunity to calculate the NUCHP of the planning year in more detail; its level must immediately be taken into account in adoption of the plan for labor. The growth rates of labor productivity in terms of the NUCHP and the number of workers are in this case taken the same as they are in calculation of the plan for labor in terms of estimated cost. The output for the base year in terms of the NUCHP is also determined on the basis of these figures.

Aside from assignment for the growth of output calculated in terms of the NUCHP, construction organizations are also assigned a target calculated in terms of estimated cost. In most cases the target for output in terms of the NUCHP proves to be lower than the target in terms of estimated cost.

The main reason for this apparent paradox is that output in terms of the NUCHP is calculated after the construction organization has already been given the output figure calculated on the basis of the estimated cost. Under those conditions output in terms of the NUCHP is determined by dividing the volume of the NUCHP which the construction organization itself has calculated for the planned number of workers, which was established on the basis of the planning target for the rise of labor productivity in terms of estimated cost.

This computational procedure encourages artificial reduction of the level of the NUCHP in the plan, since it guarantees not only a reduction of the target

for the growth of output in terms of the NUCHP, but also a hiking up of the planned standard wage per ruble of the NUCHP.

There is no question that this kind of practice is detracting from the effectiveness of the NUCHP and needs to be changed. In our view, the plan for labor should be assigned to construction organizations using the new indicator only in terms of NUCHP. Until all construction organizations make the conversion to the NUCHP, labor productivity ought to be defined as the average weighted (for the number of workers) index of the outlined growth of output in terms of the NUCHP--for those organizations which have made the conversion, and in terms of estimated cost for those which have not.

#### How to Strengthen Control

Quite a few of the unresolved problems related to use of the NUCHP have been engendered by the absence of clear-cut instructions with respect to recording that indicator and monitoring the correctness of its extraction. At the same time the urgency of this problem is especially great since the NUCHP is not being recorded or monitored by the client and is a purely internal indicator of the performance of construction organizations. This means that responsibility for the correctness of the extraction and recording of the NUCHP lies entirely on construction organizations, and it is their superior organizations and bank institutions which must exercise oversight concerning these matters.

A mandatory condition of this kind of oversight is that the amount of work done be recorded in terms of NUCHP and also in terms of estimated cost for projects on a cumulative basis from the beginning of construction and for the reporting year and that they be set against the volume of work in terms of NUCHP in the estimate and in the annual plan. This kind of system of monthly recordkeeping has been introduced, for example, at the Combine "Zaporozhzhilstroy" of UkSSR Mintyazhstroy. It makes it easier to monitor adherence to the limits of NUCHP in the estimate, the soundness of the computation of this indicator in the plan, the correctness of its determination according to work actually performed. Should there be a sizable discrepancy between indicators on performance of work in terms of estimated cost and in terms of NUCHP, an analysis is made of the causes giving rise to this discrepancy.

One thing that makes it difficult to monitor the correctness of extraction of the NUCHP is inclusion in it of costs of earth moving if this is done with the vehicles of the construction organizations. In conformity with instructions in effect of the USSR Central Statistical Administration, truck drivers are not included in the work force taken into account in determining output. Consequently, the volume of NUCHP extracted from the estimated cost of work in transporting earth would seem to be formed without expenditures of labor.

It is equally important to take into account the fact that construction organizations in many cases use not only their own vehicles, but also those of others, and it is extremely difficult to distribute the amount carried between them. Under these conditions, as experience shows, monitoring the realism of this component of the NUCHP gets quite slack.



A psychological reorientation is also necessary to improve the effectiveness of the NUChP. This is going slowly at present. Superior organizations and local soviet authorities are continuing to evaluate the performance of construction organizations according to fulfillment of the output indicator calculated in the traditional way.

Nor is it conducive to psychological reorientation for the two output indicators to be planned not only by construction organizations but also by their subdivisions (administrations, sections and brigades). This situation imposes a definite disjointedness between economic and administrative levers of management and financial and nonfinancial incentive measures of construction organizations. All of this is complicating the procedure for planning, recording and analyzing figures on labor and wages and is creating an adverse attitude toward the NUChP as an indicator and frequently even opposition to its introduction.

The range of questions which arise in the process of using the NUChP is unquestionably broader than those taken up in this article, and increasing the output from the new indicator and intensifying the interest of construction organizations in its application depend in large part on their being solved with the greatest speed.

#### Net Output Perpetuating Distortions

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 9, Sep 83 pp 107-111

[Article by A. Shevelev, candidate of economic sciences: "On the Question of Measuring Labor Productivity in Construction"]

[Text] The growing scale of social production, the need for its intensification, and the greater complexity of economic interrelations--all of this is advancing new requirements on management of the economy and on planning above all. The system of planning indicators which take into account the specific nature of sectors and reflect most fully the growth of production, the rise of production efficiency, the productivity of labor, product quality, and conservation of worktime and various resources has particular importance. In the current 5-year period a new indicator--adjusted normative net output (NUChP)--has begun to be applied in the practice of planning labor productivity by construction and installation organizations.

The decree of the CPSU Central Committee and USSR Council of Ministers on improving the economic mechanism provided that the results of fulfillment of assignments for activation of capacities and projects, for the volume of the marketed output of construction, for the rise of labor productivity and for the growth of profit are to be the points of departure in evaluating the performance of construction and installation organizations. Beginning in 1981 profit is planned in accordance with the plan for delivery of the marketed output of construction and bank credit so as to take into account the credit financing of the current costs of the construction process.

The uneven distribution of the activation of capacities and the delivery of the marketed output of construction among the quarters of the year has an adverse effect on formation of profit, economic incentive funds and cost-accounting (khozraschet) relations. Since 1969, while the estimated cost of construction has remained unchanged, there have been increases in the wholesale prices of materials and fuel and transportation rates, the amount of work done in rural areas has increased, as has the amount of work done on reconstruction of existing enterprises. As a result construction organizations have sizable costs which are not compensated in the estimates.

The prime cost of construction and installation work has risen considerably at this point; many additional costs exceed the estimate prices, which reflect the conditions and cost level of the construction process in 1969 (when these prices were introduced), which is reducing the already low level of profitability of organizations operating as construction contractors. In Mintransstroy, for example, by 1982 the profitability of construction and installation work proved to be lower than the level of planned accumulation and amounted to 4.7 percent, whereas for the ministry as a whole it was supposed to reach at least 15 percent. Experience in determining the estimated cost of work items based on use of stable prices instead of prices in effect and future prices, resulted in a reduction of profit in that ministry (because the wholesale prices of materials and fabrications were higher than the estimate prices) by 60-80 million rubles a year. That is why a number of construction ministries are proposing that the estimated cost of work include a standard rate of planned accumulation large enough to allow them to make the transition to full cost accounting.

The rise of the prime cost of work items and the drop of profitability are a consequence of the lag of the growth rates of labor productivity behind wages. For the period 1965-1979 the average wage of construction workers rose 87 percent in the sector as a whole, while labor productivity rose 72 percent.

In our view, in addition to raising the level of planned accumulation, it is advisable to divide it up among the types of construction--industrial, housing, rural, standard, one-of-a-kind, and so on. In a number of socialist countries, for example, they are differentiated even by types of construction work items. To a great degree this measure aids the transition of construction organizations to the pay-as-you-go principle. Glavmosinzhstroy [Main Administration for Construction of Engineering Installations in the City of Moscow], Glavzapstroy [Main Regional Administration for Construction in the Western Regions of RSFSR] (Leningrad), LISSR Minstroy [Ministry of Construction], BSSR Minpromstroy [Ministry of Industrial Construction], etc., are operating on pay-as-you-go principles at the present time. Their experience has been convincing as to the urgency of increasing the share of net income in the price of the construction product so that the price reflects the socially necessary expenditures of labor to a greater extent and covers expanded reproduction.

Increasing the rate of planned accumulation lies in the jurisdiction of USSR Goskomtsen [State Committee for Prices] and USSR Gosstroy. But this is a

very complicated problem involving the need to change proportions between accumulation and consumption in an important sector of the economy. The new estimate prices being introduced in construction as of 1 January 1984 envisage planned accumulation at 8 percent instead of the 6 percent established in the estimate prices now in effect. But this rate in our view is also inadequate for the transition to full cost accounting. In order to come closer to solving this problem we need to enhance the responsibility of construction organizations for fulfillment of planning targets, ruble control over fulfillment of plans for the volume of production and the prime cost of work items, and raising the level of the planned profitability of construction organizations.

The reduction of profit and profitability also resulted from the introduction as of 1 January 1976 of the coefficient for reduction of the estimated cost of construction and installation work and the substantial decrease in their growth while fixed productive capital and the machinery-labor ratio were rising. Until the revision of estimate prices as of 1 January 1984 certain construction contractors consider it necessary that they be reimbursed the higher costs on the basis of a corrective coefficient to be applied to the estimated cost. Funds are being allocated from the budget to a number of construction ministries for compensation of costs not taken into account in the estimates.

The issues of the realistic rate of profit and also the source from which profit is to be formed await their resolution in connection with the problem of applying adjusted normative net output. It should be borne in mind that profit, as one of the indicators of the performance of construction organizations, is not free of the impact of factors which do not depend on them, above all the materials intensiveness of work items. For that reason it is important to eliminate the influence of such factors so as to discover that portion of profit which has been created by the work of the respective collective. The trouble is that so far the question has not yet been cleared up of whether the planned accumulation is to include the saving achieved by cutting costs under the heading "Materials" as against their estimated cost (in comparable prices) when the volume of the calculated (actual) adjusted net output is being determined, or whether the amount of overexpenditure in case of a higher cost under this heading is to be included from that volume.

NIIMosstroy [Scientific Research Institute of the Main Order of Lenin Administration for Housing and Public Works Construction in the City of Moscow], for example, in the method it worked out for determining calculated adjusted net output, included in planned accumulation the saving achieved by reducing the costs of materials, which in our opinion is unjustified. After all, material costs are not included in net output, and consequently a saving or overexpenditure of the past labor contained in them, without influencing the volume of net output, is reflected in the results of fulfillment of the financial plan: the prime cost of output (work items), profit and profitability.

Duplication of these results using the NUCHP does not strengthen the motivation of construction people to make thrifty use of physical resources and at the same time diminishes the accuracy of the unit by which live labor is



measured. As a rule this saving is a consequence not of expenditures of labor, but of a change in prices of materials and conditions for their transport. And including it in the volume of adjusted net output (or omitting an overexpenditure) could result in a distortion of the indicator of the profitability of live labor and of use of the wage fund.

In this connection adjusted net output becomes more dependent upon the materials intensiveness of work items, and construction organizations with a differing level of material costs will be put in unequal conditions. In addition, the setting of quotas for live labor and the planning of its productivity are more refined than the setting of standard allowances and planning related to material costs.

Thus inclusion in the volume of adjusted net output of elements of profit that depend on the level of materials intensiveness reduces the accuracy of the unit used for measurement of live labor and detracts from the effectiveness of monitoring the latter's productivity. And the level of production will turn out to be directly proportional to the level of materials intensiveness of work items in the respective construction organization. Balance-sheet profit, along with other indicators of the efficiency of the construction process (prime cost of construction and installation work, profitability, and so on) will reflect all types of conservation, including the saving of past labor.

The influence of materials intensiveness on the labor productivity indicator still cannot be judged from the relative share of outlays for materials in the estimated cost of construction and installation work. For instance, in 1981 the share of outlays for materials in the cost of work items was 53.6 percent for USSR Minpromstroy and 57.4 percent for Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises], while the output per worker was 7,888 and 20,827 rubles, respectively.

This influence can be seen far more clearly in an analysis of the components of the estimated cost. Calculations have shown that while costs of materials have risen (in the ministry as a whole) 60 percent, outlays for wages rose 22 percent, the costs of operating machines 34 percent, overhead 53 percent, profit increased 2.3-fold, and output as a whole 53 percent. Consequently, the rise in the costs of materials is accompanied by an absolute growth of output, of funds for wages (and correspondingly of the average monthly wage per worker), of overhead and of profit.

An important question is selection of the base for determining normative profit (planned accumulation) in construction. In the LiSSR Minstroy this accumulation is included in the NUCHP in the same way as it was included in the estimated cost, i.e., at 6 percent of the sum total of estimated direct costs and overhead. The influence of materials intensiveness was thereby transferred to this indicator. But even according to the procedure for charging planned accumulation (in the proportion of 45 percent of the sum total of the base wage and the costs of operation of construction machines and machinery) established by the method of USSR Gosstroy, the profit indicator is not extricated from the influence of structural shifts and from the materials intensiveness of the work items performed.



Moreover, for those types of work items on which the cost of materials is negligible or is not included in the estimate unit price adjusted normative net output, which takes into account overhead and planned accumulation, considerably exceeds the estimate unit price: when the estimated cost is determined, planned accumulation is 6 percent, but when the NUCHP is calculated, it is 45 percent of almost the same amount of costs. For instance, in 24 collections of adjusted net output norms which apply to the work of repairing buildings and installations in LaSSR (general construction work), encompassing about 1,600 different work items, 50.7 percent of the norms exceeded in their absolute level the corresponding estimate unit prices. This is an absurd situation, since in its economic content the NUCHP is a part of the estimated cost (not the other way about). Thus even when planning is done in terms of this indicator there are profitable and unprofitable work items by means of which it is possible to regulate to some degree the fulfillment of the plan for their total volume. Machinery-intensive work items (for example, earthmoving by machine) in which there is a high share of depreciation in the costs have become the most profitable.

It would seem that the wage should be the sole basis for determining planned accumulation, and that not the base wage, as in the installation of equipment, but the entire wage, which is the practice in a number of socialist countries. Inclusion of depreciation in this base results in a distortion of the indicator of expenditures of live labor.

The shortcomings of the NUCHP as an indicator have resulted largely from inclusion of depreciation in it, from setting the rate of overhead as a function of the sum total of direct outlays for wages and the costs of operation of construction machines, which carries the influence of the factor of materials intensiveness over to this indicator. It could be improved in the direction of a further "cleansing" of the influence of material costs, i.e., expenditures of past labor. This applies above all to expenditures under the heading "Operation of Construction Machines," which are included in this indicator. For example, the cost of earthmoving per 100 cubic meters includes 5.82 rubles of wages for the machine operator and 12.2 rubles of the costs of depreciation of the excavator and for fuel and lubricants. The share of these costs varies within considerable limits when different types of work items are performed; the payment for labor out of overhead, which is determined as a function of direct costs, also gives preference to materials-intensive work items.

Labor productivity evaluated in terms of NUCHP differs considerably from the standard expenditures of live labor and of its quantity and quality, depending on which individual work item is being performed. For example, the output per man-day of work in assembling reinforced-concrete fabrications in terms of the NUCHP is 2.5-fold higher than for plastering walls, though the wage rates for these work items differ by only 6 percent. Consequently, use of the NUCHP as an indicator distorts the evaluation of the productivity of live labor at the lower level of construction work.

For instance, according to the figures of Trust No 10 of Glavsevkavstroy [Main Construction Administration in the Regions of the Northern Caucasus] of

USSR Mintyazhstroy, the volume of work done in a year by a brigade of assemblers with a labor intensiveness of 4,289 man-days was 325,800 rubles when evaluated in terms of estimated cost and 71,400 in terms of the NUCHP, that of plasterers (with a labor intensiveness of 4,150 man-days) was 30,500 and 25,800 rubles, respectively. Thus when the outlays of labor by the brigades were approximately the same, the volume of assembly work was nearly 11-fold greater than that of finishing work when the estimate was made in terms of estimated cost and approximately threefold greater when it was made in terms of the NUCHP.

Some economists give preference to the adjusted normative net output indicator [NUChP] over normative net output [NChP], since in the context of scientific-technical progress the share of wages in the NUCHP decreases, and consequently the volume of NChP decreases, which, in their opinion, arouses a desire on the part of builders to increase it by the use of manual labor. The share of depreciation in the NUCHP, which increases under these conditions, would seem, then, to offset the loss in the volume of work because of the reduced share of wages.

In our view this conclusion is unsound. First of all, when labor productivity rises, the cost per unit of the product drops, but the volume of output in physical terms increases, which means that there is an increase in its total cost and the volume of the NChP (the cost of 5 products at a unit price of 1 ruble is 5 rubles, but 50 products at 20 kopecks cost 10 rubles). Second, the net output norms are stable over the period that the estimate prices are in effect, and although as a result of technical progress the share of wages and consequently the volume of net output per unit work decrease, still the volume of production is evaluated in terms of stable net output norms, and the difference that comes about (saving) is credited to the construction organization. Third, the reduction in the share of wages is less substantial than the rise of labor productivity.

For instance, the output per shift of an excavator operator, evaluated in terms of the NUCHP, is 4.7-fold greater than that of a laborer with a shovel, but the difference in the wage rate is only 1.56-fold. In spite of the fact that during the shift the machine operator does a 25-fold larger amount of work in excavating earth than the laborer (and consequently creates a NChP of greater value and size). That is why the drop in the share of wages occurring per unit output is compensated by an increase in the other part of net output--profit. It therefore follows that there is no need to preserve the volume of the NUCHP, artificially adding to it a portion of past labor in the form of depreciation. A more accurate indicator is needed. Discussion has become lively in this connection, especially concerning the normative net output indicator.

But we should bear in mind that it is more difficult to calculate the NChP than the NUCHP given the existing system for estimate price formation. The estimate unit prices identify separately only the base wage of construction workers and machine operators, which we refer to as the technological wage. Other direct and indirect labor costs in construction are proportional to outlays for the technological wage. Moreover, the pay of administrative and

managerial personnel in the overhead is determined as a function of the technological level, since there is no direct proportionality between the reduction in the specific number of workers and engineering and technical personnel per unit of the volume of work: the latter drops far more slowly or even does not decrease at all.

It is sometimes felt that the size of depreciation included in the new indicator encourages introduction of highly productive machines and machinery and their better utilization. In our opinion this point of view is unsubstantiated. First, more than 76 percent of construction equipment is possessed by machinery trusts (administrations) which are economically divorced from construction organizations. Second, depreciation is charged not on the basis of the capacity of the machine, but on the basis of its cost, which is not always proportional to the former. In this case the proposed procedure would stimulate first of all the use of more expensive machines: for example, imported machines, which require high depreciation. Third, the technology of the work process in which there is oversaturation of equipment is uneconomical; it is important to choose the optimum scheme for mechanizing operations.

The disproportionality of the saturation of construction sites with up-to-date equipment and its actual output makes it necessary to analyze the correspondence between the volume and composition of work and the makeup and structure of the pool of machines, to clarify the orientation of the course of technical policy in construction. Consequently, it is not possible to stimulate the use of more powerful equipment by increasing the share of depreciation in the NUCHP without taking into account the specific conditions of the construction process.

The principal function of the new indicator is objective measurement of the productivity of live labor. That is why A. Deminov is right in his view that "we should not attribute to the new indicator functions which it is not designed to perform. To be specific, we cannot say that introduction of the indicator of normative net output into planning completely settles the question of incentives for introduction of the advances of scientific-technical progress, though it does contribute to speeding up the assimilation of new technology...."\*

This conclusion would also seem to be of interest: use of the NUCHP necessitates revision of cost-accounting relations between construction organizations operating as general contractors and machinery trusts (administrations). Improvement of the composition and use of construction machines and machinery does not by and large depend on the use of this indicator. But since it includes the cost of materials and fabrications, unlike the estimated cost, there has been a substantial increase in the share of costs of operating construction machines, and consequently of the amount of work which trusts operating as general contractors turn over to machinery trusts (administrations). For example, in 1981 the Tsis Construction Trust of the LaSSR Ministry turned over to machinery administrations 34 percent of the entire volume of work calculated with the indicator NUCHP, whereas when evaluation was done in

\* PLANOVOYE KHOZYAYSTVO, No 8, 1980, p 30.



terms of estimated cost the share of work turned over to them was only 7.3 percent.

In essence the construction organization operating as general contractor, regardless of the intensity of work or the amount of idle time of the crane operator, bulldozer operator or other workers, turns over a part of the volume of its work items evaluated in terms of the NUChP to the machinery trusts (administrations). As a result the machine operators are taking from the construction workers a disproportionately large amount of work, which not uncommonly increases their output determined in terms of NUChP 3-3.5-fold as compared to the output of general construction organizations.

The disproportionality in the amount of NUChP turned over to machinery administrations results from the fact that when settlement is made with the builders the latter as a rule determine those amounts in planned accounting prices, which are higher than estimate prices. Calculation of profit (planned accumulation) in percentages of total outlays for base wages and for operation of machines also is conducive to uneven distribution of the volume of work done and expenditures of labor between construction workers and machine operators. According to the figures of Trust No 10 of Glavsevkavstroy, mentioned above, 30 percent of its profit is included in the volume of NUChP of machinery subdivisions, while the specific labor intensiveness of their work items is 12 percent. Settlement with these subdivisions often does not correspond to the expenditures of their labor; they are being put in a privileged position and are not motivated to improve the utilization of equipment. At the same time, when the indicator NUChP is used, organizations operating as general contractors must furnish the machinery trusts (administrations) work to be done and a fuller load on machines and machinery. Certain officials of LSSR Ministroy propose omission from the transferred portion of work items estimated in terms of the NUChP of the volume of work not directly related to the operation of machines and that the cost of operation of rented machinery not be included in the NUChP.

The values of factors in the growth of labor productivity measured in terms of the NUChP and estimated cost do not coincide. In connection with the fact that the influence of a number of factors on the volume of production in terms of NUChP disappears or falls off substantially, this has to be taken into account in planning labor productivity. External factors independent of the performance of construction organizations and materials intensiveness above all have the greatest influence on lowering the level of labor productivity.

In application of the NUChP indicator in the structure of the actual prime cost of work items a tendency is being pursued to reduce their materials intensiveness, which brings about a reduction in the volume of work done in terms of estimated cost. For instance, in the LSSR Ministroy in the first half of 1981 the relative share of costs under the heading "Materials" in the prime cost of work items was 51.7 percent as against 54 percent in the first half of 1980, i.e., before the new indicator was introduced. At the same time the costs of base wages and operation of construction machines and machinery increased from 12.6 to 12.7 percent and from 8 to 8.9 percent,



respectively. The constructive influence of the NUChP on reduction of materials intensiveness is especially valuable in the light of the decree of the CPSU Central Committee and USSR Council of Ministers dated 30 June 1981 and entitled "On Intensification of the Effort To Conserve and Make Optimum Use of Raw Materials, Fuel and Energy, and Other Physical Resources."

The slackening of attention in the mid-sixties to the indicator of the prime cost of construction and installation work was conducive to a rise of materials intensiveness. After all, in the prime cost of construction material costs have the dominant influence. That is why the NUChP is one of the economic instruments for reduction of the materials intensiveness of construction and for use of more progressive materials and fabrications, which was held back when the gross indicator was used.

In addition to economic and cost-accounting instruments, financial instruments for influencing the indicators of construction organizations also play a vigorous role in improving the economic mechanism for management of capital construction. Although the principal sphere of application of the NUChP is planning labor productivity and the wage fund, this indicator is having a constructive effect toward reduction of the volume of unfinished construction work. This kind of economic effect can also be reinforced by a financial pressure.

But the differing rates of profitability that have persisted with the NUChP is making it more complicated to plan labor productivity and the wage fund. That is why experiments must be continued to improve evaluation of labor productivity in construction.

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## LABOR

### RELATIONSHIP BETWEEN PRODUCTIVITY GROWTH, WAGES EXAMINED

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 10, Oct 83 pp 87-92

[Article by D. Karpukhin, professor and doctor of economic sciences: "The Relationship Between Growth in Labor Productivity and Wages"]

[Text] One of the objective requirements for planned, proportional development of the national economy is insuring that labor productivity grows faster than wages. The Communist Party and Soviet Government have always devoted special attention to establishing and maintaining this relationship. The August 1924 decree of the Plenum of the Central Committee of the Russian Communist Party (Bolshevik) entitled "Wages Policy" observed that "the development of industry, the might of the state, the possibility of prolonged growth in wages themselves, and reinforcing the current level of wages demand an inverse relationship -- greater growth in gross output per participant in production. Growth in labor productivity must exceed growth in wages. Only on this condition will the material base be established and resources accumulated to: insure growth in wages; expand production, which requires an increase in working capital; replace of wornout and outdated equipment; meeting ever-growing cultural needs; educate and indoctrinate the growing generation and, govern and defend the state."<sup>1</sup>

In our day too, in the period of mature socialism, the problem of the essential proportionality between these economic indicators has not declined in significance at all. Indeed, it is even more timely in view of the scope of economic development and the tasks of intensifying public production and carrying out our majestic social program. The document "Basic Directions of Economic and Social Development of the USSR for 1981-1985 and the Period until 1990" provides: "Insure faster growth in labor productivity than growth in labor productivity and growth in wages in sectors of the national economy and at associations and enterprises."<sup>2</sup>

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<sup>1</sup>"Resheniya partii i pravitel'stva po khozyaystvennym voprosam" [Decisions of the Party and Government on Economic Issues], Vol 1, Moscow, Politizdat, 1967, pp 435-436.

<sup>2</sup>"Materialy XXVI s'yezda KPSS" [Materials of the 26th CPSU Congress], Moscow, Politizdat, 1982, p 139.

In the 10th Five-Year Plan, however, the ratio established in the plan between growth in labor productivity and the rise in wages was violated. In industry, for example, the growth in average wages per one percent growth in labor productivity was 0.69 percent instead of 0.5 percent as calculated in the five-year plan, not counting sums appropriated for increasing wages. Counting these sums it was 0.84 percent. In certain sectors (coal industry and meat and dairy industry) the level of labor productivity declined during these five years while wages rose. Wages rose faster than labor productivity in ferrous metallurgy, the petroleum, timber and paper, and food industries, and fishing. The two indicators rose at roughly the same rate at enterprises of the building materials industry. In machine building the growth rate of labor productivity was greater than growth in wages, but it was uneven by sectors.

The situation did not change in the first years of the 11th Five-Year Plan. In 1981 the average wages of workers and employees in industry rose 2.3 percent while labor productivity grew 2.7 percent; in other words, growth in wages was 0.85 percent of each one percent of growth in labor productivity instead of 0.64 percent according to the plan. In 1982 labor productivity in industry increased 2.1 percent, while the wages of workers and employees (considering additional capital appropriated in a number of sectors) rose 3.5 percent. Therefore, the growth in wages was 1.7 percent for each percentage point of growth in labor productivity.

Thus, both in industry as a whole and in many of its sectors the actual ratio between the growth rates of labor productivity and wages diverges considerably from the planned figure. This has a negative effect on the entire system of national economic proportions.

In his article "The Doctrine of Karl Marx and Some Questions of Building Socialism in the USSR," General Secretary of the CPSU Central Committee Yu. V. Andropov wrote as follows: "Thus, it becomes perfectly clear that we cannot permit violation of the objective economic requirement that labor productivity grow faster. Unless closely tied to this crucial factor a rise in wages, which at first produces an outwardly favorable impression, ultimately and inevitably has a negative impact on all economic life. Specifically, it generates wants that cannot be fully satisfied at the given level of production and prevents us from eliminating scarcities with all their ugly consequences that arouse the just indignation of the working people."

In practice, the question of the necessity of establishing and maintaining a ratio between the growth rates of labor productivity and average wages arises constantly and is not always resolved correctly. Many planning and management personnel believe that the principle of faster growth in labor

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<sup>3</sup>Yu. V. Andropov, "Ucheniye Karla Marksa i nekotoryye voprosy sotsialisticheskogo stroitel'stvo v SSSR" [The Doctrine of Karl Marx and Some Questions of Building Socialism in the USSR], Moscow, Politizdat, 1983, p. 15.

productivity is being upheld if it grows faster than average wages. But this is not enough for observance of the established ratio. What must be insured is not simply faster growth, but faster to the degree envisioned in the plan. This is because the ratio between the growth rates of labor productivity and wages is closely linked to the basic proportions that characterize the rate and scale of socialist reproduction: between social production and personal consumption, savings and consumption in national income, production of means of production and production of consumption objects, and so on.

The main reason for the situation that has developed is a decline in the growth rate of labor productivity. In the 10th Five-Year Plan the average annual growth rate of labor productivity in industry declined to 3.2 percent in comparison with six percent in the 9th Five-Year Plan. In the 11th Five-Year Plan higher growth rates for labor productivity in industry were envisioned than the rates actually achieved in the 10th Five-Year Plan. The results of the first two years of the current five-year plan testify that we have not yet been able to overcome the trend toward slowdown in growth of labor productivity. As noted at the November 1982 Plenum of the CPSU Central Committee, the main indicator of economic efficiency -- labor productivity -- is growing at a rate which cannot satisfy us. In 1981-1982 it was 4.8 percent in industry, instead of 6.3 percent as envisioned in the annual plans.

In the 10th Five-Year Plan and the first two years of the 11th Five-Year Plan average wages in industry increased at the rate envisioned in the plan, and even somewhat faster. At the same time these rates were lower than those of earlier years. Whereas the average annual increase in average wages of industrial production personnel in 1966-1970 was five percent, in 1971-1975 it was four percent, in 1976-1980 -- 2.7 percent, in 1981 -- 2.3 percent, and in 1982 -- 3.5 percent. This increase occurred progressively in line with growth in labor productivity and the rise in qualifications (so-called natural growth), change in the sectorial and territorial structure of production, and as a result of centralized measures carried out in certain sectors of industry and for certain categories of working people.

The more rapid increase in the volume of production of group A sectors compared to group B sectors had a certain influence on raising wages and increasing the proportion of wages relative to growth in labor productivity. The point is that the level of wages in the sectors of heavy industry is higher than in light and food industry, but the output in cost terms per worker in many of them, especially machine building, is lower. Roughly the same situation is taking shape as the result of moving industrial production, above all its extraction sectors, to the northern and eastern regions where regional wage coefficients are in effect and the supplements for time and service are higher than in other regions (which cannot be said for the production of output by each working person).

In general the discrepancy between growth in wages and rise in labor productivity usually occurs because plan assignments for growth in labor productivity are adjusted downward without adequate grounds, for the purpose of



reducing the lag that has occurred. Ministries and industrial associations often revise plan assignments in order to insure fulfillment of the plan for the sector or subsector or at least to come closer to fulfillment. In this way they make life easier for those who are doing a poor job and increase the burden on those who are working hard.

In our view, we must reject the long-operative practice of setting plan assignments for enterprise growth in labor productivity in sharply rising figures by years of the five-year plan and quarters of the year. For example, in the 10th Five-Year Plan labor productivity in industry was to be raised by an average of 3.4 percent a year, but for 1980 the figure was 7.2. In the 11th Five-Year Plan, there is also growth, although not as much -- from 3.6 percent in 1981 to 5.6 percent in 1985. The planning practice for this indicator is similar within the year. For example, in 1981 in industry the growth rate of labor productivity in the second half of the year was set twice as high as in the first. This kind of approach does not stimulate use of existing reserves for accelerating growth in labor productivity in the initial period and during the first six months creates the appearance of well-being and possible bonuses, but later leads to last minute rushing and is the reason that a significant number of enterprises do not fulfill their annual plans (if they have not been adjusted).

The formalistic approach to working out plans for growth in labor productivity based on the level achieved and without substantiation and thorough consideration of the set of factors that determine this growth is still practiced and must be eliminated. A number of factors envisioned by the methodological instructions of USSR Gosplan are not taken into account in substantiating plans, and the amount of relative labor savings for some of them is determined inaccurately. In their calculations ministries and departments often deliberately understate the effect of certain factors in order to have an opportunity to overfulfill the plan. Frequently the factors envisioned in the plan and reflected in the report do not coincide, and the results of their influence are directly opposite to those that were planned.

To change this situation we believe it would be wise for five-year and annual plans of economic and social development to include a section that contains the substantiation and indicators of labor savings by factors and is correlated with the sections on raising the technical level of production, introducing scientific organization of labor, and social development. The USSR Central Statistical Administration should insure annual reporting on growth in labor productivity by factors for ministries and departments. Social factors must be added to the classification of these factors. The significance of social factors increases every year (the methodology of their influence on labor productivity has been worked out by the Scientific Research Institute of Labor). It is more correct to determine the initial number of working people for a planning period on the basis of the calculated amount of annual production figured using the level achieved at the end of the base period. The method of calculating the initial number of persons working according to annual production of output in the base period, which is used in current planning, frequently leads to overstating the

number in the plan and, accordingly, to understating assignments for labor productivity.

The main condition for insuring faster growth of labor productivity compared to wages at every enterprise, in all sectors, and for the national economy as a whole is utilization of all factors that determine the levels and growth rates of labor productivity and wages. Some of them such as introduction of new equipment, mechanization and automation of production processes, modernization of equipment, specialization of production, and others, create the possibility of an accelerated increase in labor productivity compared to the increase in wages. Only to a certain degree do these factors depend directly on the amount and quality of labor of a given group of working people, because they are not built by an individual collective -- they are built by society as a whole. For this reason the economic impact from their use should go to the entire society, not just the people employed at those enterprises where the corresponding measures are taken. For example, the increase in wages of persons working in a section where new equipment has been put into use should be linked to structural changes in the composition of the working people (rise in the average level of qualifications of workers and corresponding increases in their wage schedules, an increase in the proportion of engineering-technical personnel in the total number of enterprise personnel, and so on) and with the extent of their participation in technical progress (by supplementary payments envisioned to stimulate the development and introduction of new technology into production).

The result of the action of the other group of factors, which are directly related to increasing the quantity and improving the quality of labor, is growth in wages proportional (or at similar rates) to the increase in labor productivity. Among these factors are improving worker qualifications, condensing work time, reducing intrashift losses of work time, and so on.

Where labor productivity is raised through the action of the first group of factors (introduction of new technology, expanding mechanization of work, and so on) its growth rate should surpass the growth rate of average wages. And on the contrary, when such factors as improvement in qualifications and stepping up the intensity of labor have a greater influence on labor productivity, these rates will tend to go down. This means that wages rise in both cases, but at different rates.

While introduction of new technology is a major influence on raising labor productivity in industry as a whole (in 1976-1980 it accounted for about 56 percent of total growth), in many sectors it is insignificant. To intensify the influence of this factor in all sectors and thus create a real basis for accelerating the growth rate of labor productivity, we must not only improve the substantiation of plan assignments for introduction of new technology but also strive to carry them out fully. At the present time, a number of sectors fail to fulfill their plans for introduction of new technology year after year. Furthermore, those ministries who fulfill the plan for introduction of new technology or are close to it do not fulfill

assignments for growth in labor productivity, which testifies to failure to correlate them with plans.

Insuring accelerated growth rates for labor productivity demands creating conditions for fully loading production capacities and increasing the shift coefficient at enterprises and associations with a high organizational-technical level of production through redistribution of the material and labor resources of enterprises that have obsolete equipment and a low level of production. In those cases where such an approach is not possible, capital investment should be directed to evening out the technical level of production by raising up lagging enterprises for these indicators.

A determined offensive against manual labor, full mechanization and automation of production, and gradual elimination of jobs with difficult and dangerous working conditions are becoming especially important. At the present time enterprises are often forced to pay higher wages, use outdated production norms, raise rating schedules, and increase bonus amounts in order to get people to work in sections with unattractive types of labor. Development and implementation of a comprehensive target program to reduce manual labor also makes it possible to raise the overall level of labor productivity.

The structure of industrial production personnel needs improvement. The number of engineering-technical personnel is growing in connection with technical progress. This is an objective process. But an increase in their proportion of all industrial production personnel and a decrease in the proportion of workers is often not required by production conditions and has a negative effect on the level of production output per person employed in industrial production. All this has a negative influence on the ratio of the growth rates of labor productivity and wages.

Reducing losses of work time and strengthening production and labor discipline are very important for insuring established ratios between growth in labor productivity and wages. Speaking to Moscow machine tool building workers, Yu. V. Andropov said: "We are speaking of a serious attitude toward all aspects of production discipline, including technological discipline, supply discipline, and so on. We must see that the effect of raising discipline is felt in all elements of our production.

"We need conscious worker discipline, the kind of discipline that will move production forward."<sup>4</sup>

Improving the style of work, strengthening control over execution of decisions that are made, and improving party, state, and labor discipline following the decisions of the November 1982 Plenum of the CPSU Central Committee have had a positive effect on production work. In the first half of 1983 the volume of industrial output increased by 4.1 percent in comparison with the same period of 1982 and labor productivity rose by 3.3 percent.

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<sup>4</sup>EKONOMICHESKAYA GAZETA No 6, 1983, p 3.



The brigade form of labor organization is especially important in eliminating losses of working time and realizing the planned ratio between growth in labor productivity and increase in wages. Experience shows that comprehensive brigades working on a unified order taking account of final results have losses of working time that are 2-2.5 times lower than for jobs with individual organization of labor, while labor productivity is 5-10 percent higher.

Revision of output norms occupies a special place among the economic and organizational levers which can be used to regulate the labor productivity-wages ratio. Norm establishment is the connecting link between labor productivity and wages. When output norms rise labor productivity increases in a directly proportional relationship, while piece-rate schedules are decreased accordingly. In order not only to keep wages for piece-rate workers at the earlier level but also to increase them, they must achieve growth in labor productivity exceeding the increase in output norms. Therefore, when revising norms opportunities are created for accelerated growth in labor productivity compared to the increase in wages.

Output norms perform their function when they are technically sound and established at the level of sectorial and intersectorial standards. Unfortunately, however, the situation in this respect today is not entirely satisfactory. Despite the restrictions which are instituted so that workers cannot greatly overfulfill output norms, the proportion of such workers is increasing while plans for labor productivity are not fulfilled. For example, in 1981 more than one-third of the piece-rate workers in industry fulfilled their output norms by 110-130 percent and about one-third fulfilled them by 130 percent and more; in construction the corresponding figures were one-third and one-half. In many cases labor norms are not reviewed for years, even though major organizational-technical measures are taken during this time. They use norms which are called technically substantiated, but in reality are significantly lower than the level of intersectorial and sectorial standards; supplementary payments are even made for fulfilling them (within limits up to 20 percent of the wage rate).

Planning the wages fund on the basis of standards for wage expenditures per ruble of output is very important to establish a correct ratio between the growth rates of labor productivity and average wages. Normative planning poses the tasks of: retreating from the practice of annual planning of this fund "based on the level attained"; establishing a close and substantiated relationship (dependency) between the volume of production and resources for labor payment; and, insuring that the enterprise has an interest in adopting stepped-up plan assignments that exceed the five-year plans.

Experience shows that in many cases wage standards are employed in a formalistic manner. This is related, on the one hand, to the instability of five-year and annual plans and, on the other hand, to the lack of fully developed methodology for determining standards. Correction of production volumes deprives the normative method of planning of its stimulating role because enterprises still do not have an interest in conserving capital for wages. There is a return to planning "from the level attained," but in



kopecks per unit of output produced, not an absolute wages fund amount. In a number of cases a wage fund savings unrelated to the efforts of the enterprise collective is achieved.

As for methodological questions, attention here must be directed to the following shortcoming, which has a negative effect on the ratio between growth in labor productivity and growth in wages. According to the methodological instructions ratified by USSR Gosplan, the USSR State Committee for Labor and Wages, and the USSR Ministry of Finance on procedures for determining long-term wage standards per ruble of output, the standard is determined by the ratio of planned expenditures for wages to industrial production personnel and the volume of output. This means that when ratifying the five-year plan the enterprises and associations of a ministry and all-Union production associations must first of all determine the planned wages fund. Therefore, the norm becomes a derivative quantity, not an initial one.

In practice, a directly proportional dependency is established in many cases between the volume of output produced and the wages fund of industrial production personnel. But there should not be such a dependency. As we know, growth in the volume of output produced does not require a corresponding increase in labor expenditures by all categories of personnel (engineering-technical personnel, employees, security personnel, junior service personnel, and auxiliary workers on time payment). Therefore, the adjustment to the production plan and the corresponding adjustment in the wages fund lead to an unsubstantiated increase in the latter. To overcome this shortcoming only the part of the wages fund for piece-rate workers should be adjusted. It is also wise to fulfill annual assignments for reducing the number of industrial production personnel taking into account the labor savings obtained from normative planning of the wages fund.

Where the wages fund is formed according to standards for expenditure of wages per unit of output, it is essential to insure control over attainment of a faster growth rate for labor productivity. The 30 September 1968 decree of the USSR Council of Ministers entitled "Measures To Improve the Practical Use of the New System of Planning and Economic Stimulation of Production" envisions that in those cases where an increase in average wages (considering payments from the material incentive fund) at production associations and enterprises exceeds growth in labor productivity in the annual plan and actual growth for the year, the corresponding part of the resources of the material incentive fund is transferred to the reserve for use in the following year. But this measure is not applied today to enterprises which have switched to the normative method of planning the wages fund. At the same time, experience testifies that wages can also grow faster than labor productivity at enterprises of those ministries where this technique is applied. In view of these circumstances it seems essential to apply the planned monitoring measures at enterprises which form the wages fund on the basis of expenditures per unit of output.

The amount of capital due to enterprises for paying wages should apparently be made dependent not on the total volume of output produced, but on

fulfillment of the plan for deliveries in conformity with contracts. The mechanism of bank control when issuing capital to enterprises for wages should be used for this purpose, and this should be reflected in appropriate normative enactments.

The proportion of capital used to increase average wages in total growth in the wages fund is rising. Thus, in 1976-1980 63 percent of the growth in the wages fund went to raise average wages; in 1981-1985, according to calculations, the corresponding proportion will be 78 percent. In general this is a positive phenomenon that characterizes the process of intensive expanded reproduction where growth in social production is increasingly secured on the basis of raising labor productivity, which causes a corresponding increase in wages. But in those cases where the efficiency of labor grows at a rate that does not correspond to plan projections while average wages rise at a faster rate, the established ratio needs to be changed.

There are shortcomings in the organization of wage payments that must be eliminated. Among them are: the existence of elements of "leveling"; insufficient correlation between the primary part of wages (wage rate or salary) and the results of labor; shortcomings in planning and forming the wages fund and material incentive fund; violation of ratios and levels of wages for particular categories of persons, in particular engineering-technical personnel and workers; the multiplicity of incentive systems and their lack of comprehensiveness, which results in working people having no interest in reducing labor expenditures, and others.

It should also be observed that the number of measures taken by enterprises and directly related to the use of internal reserves for growth in labor productivity and their impact have systematically declined. The result has been an increase in wages calculated per one percent of rise in labor productivity.

It seems that the time has come for a reorientation in carrying out centralized socioeconomic measures. First of all, consideration should be given to directing them to raising labor productivity. Measures to increase average wages, including the institution of new wage rates, must be implemented progressively as internal reserves for growth and labor productivity are put into use. The planned gradual rise in the minimum wage to 80 rubles a month and the increases in wage rates and salaries of workers and employees should intensify the interest of working people in improving their qualifications, establish more rational differences in payment (depending on conditions and intensity of labor), and promote a rise in the quality of work to establish labor norms.

The system of supplements and additional payments also needs to be revised. Its application is contradictory in character. On the one hand, supplements make it possible to reflect individual differences in labor caused by intensity of labor, qualifications, level attained, and labor productivity more fully. The purpose of supplements and additional payments is to improve the establishment of labor norms. It operates as a method of reducing

the additional need for labor, and unlike the wage rate schedule it has great flexibility.

In some cases supplements for combining occupations, for vocational skills, and the like are established for workers with low wage-skill categories. In this way the payments are used to attract workers to unskilled jobs with difficult working conditions, based on manual labor. This situation must be changed. Supplements should be used to free working people as the result of combining occupations and raising the productivity of the labor of highly skilled personnel. In this case the skilled personnel must know that the supplements can be revised.

There are serious shortcomings in the bonus payment system that must be eliminated. It has become common to use bonus payments to regulate wage levels. At the present time bonus payments are about 30 percent of the level of a worker's wages, including payment according to wage schedules and piece-rate earnings. In many areas of production the actual amounts of bonuses have approached their maximum boundaries or have reached an established threshold (40-60 percent). More than 90 out of every 100 industrial workers -- piece-rate and time-rate -- are paid according to the bonus system.

Many enterprises do not insure that bonuses are used primarily for the basic results of economic activity, as contrasted with bonuses paid under special systems. When raising wage rates and improving organization of the bonus payment system it would be advisable to lower the rate of growth of bonus payments so that their proportion of earnings declines to a level that can have an active and purposeful impact on raising labor productivity and production efficiency.

Insuring conscientious labor by Soviet people and rigorous order and organization are very important in solving the problem of making labor productivity grow faster than wages. The decree of the CPSU Central Committee, USSR Council of Ministers, and AUCCTU entitled "Intensifying Work To Strengthen Socialist Labor Discipline" envisions firmly uprooting cases of tolerance toward violators of labor and production discipline and using measures of public influence and the norms of existing law more effectively for these purposes. The rights given by the USSR Law on Labor Collectives should be used extensively in adopting these measures.

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## LABOR

### READERS' COMMENTS ON LABOR PARTICIPATION COEFFICIENT

Moscow SOTSIALISTICHESKIY TRUD in Russian No 8, Aug 83 pp 45-50

[Review of letters to the editor by T. Shatova, senior scientific associate of the Scientific Research Labor Institute and candidate of economic sciences: "Once Again on the KTU"]

[Text] As in the past, the very important and rather complicated question of optimum use of labor participation coefficients [KTU] in distribution of the work brigade's collective earnings is still an urgent one that arouses great interest on the part of our readers. The KTU has recommended itself in practice as an effective means of enhancing the motivation of every worker to increase his personal contribution to the end results of the collective's activity. In addition to extensive publication of articles and reports directly from enterprises and also the results of scientific summaries of practice made by staff members of sectoral and intersector scientific research organizations and NOT [scientific management] centers, the editors of the journal have also published topic reviews of material on two occasions in recent years.

Many readers have responded to the suggestion made in the journal's issue No 7 for 1981 that they share their experience in use of the KTU in applying a comprehensive work quality control system devised at enterprises. We are in fact devoting the present review mainly to an examination of material sent to the editors of the journal concerning the interaction of KTU and KKT (work quality coefficients) in distribution of the brigade's collective earnings. For instance, in the journal's issue No 5 for 1982 L. Yevlasov, director, and V. Churasov, chief of the OOTIZ [Department of the Organization of Work and Wages], of the Ivano-Frankovsk "Avtolitmash" Plant, shared the experience of their enterprise, where a uniform method of distribution of collective earnings based on recording the coefficient of the efficiency and quality of work ( $K_{ekt}$ ) is applied in all brigades. This coefficient is a conventional term quantitatively expressing the level of efficiency and quality of work not only of each worker, but also of the collective of the brigade as a whole, which is also very important for objectively totaling up the results of socialist competition among brigades. As is evident from the article, the system applied there for distribution is rather complicated and multistaged, but it has been thoroughly worked out and offers the possibility of a high degree of objectivity in evaluating the efficiency and quality of work. In certain



consolidated and mixed brigades that do a job from start to finish and use both piece rates and time rates for remuneration, individual productivity coefficients ( $K_{ip}$ ) are also used at the workers' request. In essence they are base coefficients which take into account the average monthly earnings the workers have achieved over the previous 6-12 months.

Along with the generally favorable assessment of this experiment, one cannot but express doubt about the legitimacy and effectiveness of using a single method of distributing earnings for all brigades. As V. Novakovskiy of Riga noted in his statement (No 1, 1982), even in the shops of a single plant there are differing conditions and circumstances requiring a differentiated approach to application of different methods of organization of work and of work incentives. This suggestion that it is advisable for intersector and sectoral recommendations on methods to envisage the possibility of using different methods of distributing collective earnings (at the choice of the brigade) deserves attention in our view.

In the article which he sent to the editors of the journal A. Kozlov, an economist from Kalinin, analyzes the method of distribution of the brigade's collective earnings, in which evaluation of the quality of work is one of the elements. Lists are carefully drawn up of the most important criteria for determination of this rating. For instance, in addition to the necessary individual characteristics of a piece-rate worker (quota fulfillment, product acceptance on the first sample, participation in production innovation, work discipline, and so on), criteria such as these are also used in the  $K_{kt}$ :

contribution to fulfillment of the production plan of the section or shop, to maintaining the general smoothness of operation, to introduction of progressive technological processes, and so on. The KTU does not coincide here in its content with the  $K_{kt}$ . The author of the letter accordingly proposes that

both coefficients be retained and that differing criteria and a general proportion of reduction or increase of wages be determined for each of them. In this connection he proposes that the KTU be used for distribution of the extra piece-rate earning and bonuses be distributed by means of the  $K_{kt}$ .

A. Kozlov also deems it necessary to establish a definite interrelationship between these coefficients: that is, if the KTU goes up or down (from 1), additional adjustments are also made in the  $K_{kt}$ , but not in a ratio 1:1, but in a ratio 1:5. If, say, the KTU should rise by 0.3, then 0.06 ( $0.30 \times 1/5$ ) should be added to the  $K_{kt}$ . The author proposes that all these calculations be made by the brigade itself, though it seems to us that the help of people who work with economic statistics is needed here.

Comrade Kozlov's proposed change of the level of the  $K_{kt}$  as a function of the upward or downward movement of the level of the KTU does have a certain rationale, since the personal participation of everyone in achievement of the results for which the brigade is being paid a bonus must also be reflected in the size of the bonus being distributed by means of the  $K_{kt}$ . But in our view such adjustments of the  $K_{kt}$  undermine the objectiveness of the very system of

determining them. At the same time the author of the article expresses wishes with which we cannot agree: the actual procedure of calculating the KTU within the collective of the brigade must not by any means be embarrassing to any member of the collective. After all, work results differing from those of others do not always occur because the worker himself does not want to work; they can also result from other causes: physical condition, individual abilities, habits and experience, and so on.

M. Shvartsapel', chief of the department of wages and labor of the Odessa Headgear Factory, notes in his article that recording individual output in connection with remuneration in the garment industry corresponds to the specific nature of the production process. For that reason this kind of recording is retained even when the brigades of the new type are in operation. He correctly raises the issue of the need for both a quantitative and also a qualitative evaluation of the work of every member of the brigade when a method is being prepared for determining the KTU. When the KTU reflect only qualitative indicators, the result is that this indicator is replaced by work quality coefficients worked out previously. In defining the qualitative evaluation the author proposes that two factors be distinguished--the extensive and the intensive. The extensive ( $K_o$ ) is the ratio of time worked by each worker to the planned amount of worktime in the current month. The intensive factor ( $K_v$ ) is the ratio of the percentage of fulfillment of the worker's output quota to the average percentage of fulfillment of quotas by the brigade.

M. Shvartsapel' also proposes that the qualitative evaluation be made with respect to two factors: the skill level of the labor and the level of its social recognition. The skill level ( $K_k$ ) is defined as the ratio of the average wage rate of jobs performed by the worker to the average wage rate of jobs performed by the brigade. The level of social recognition of labor ( $K_t$ ) is calculated every day on the basis of the KSUKP [comprehensive product quality control system] which has been worked out at the enterprise.

The KTU is defined as the product of the four coefficients indicated above:  

$$KTU = K_o K_v K_k K_t.$$

This practice in determining the level of the KTU can in general be favored. But we should note that it can hardly find wide application in enterprises of other branches of industry where the workers do not perform one and the same operation, but different operations, and where the proposed precise recording of the complexity of operations and every worker's level of performance of quotas is not always possible, and sometimes it is not even advisable. After all, detailed recording of only the individual indicators of everyone's work can promote a return to the principles of individual piecework. Incidentally, the author does not report how the motivation to improve the general and final results of the brigade's work is guaranteed at the factory.

An article by P. Pogonyalkin on the practice of determining the collective earnings and bonus with the calculated coefficient of the individual

productivity of labor ( $K_{\text{ipt}}$ ), which is determined on the basis of the quota-hours worked in the month, was published in the journal's issue No 4 for 1982. V. Andriyenko, senior scientific associate of the Economics Institute of the USSR Academy of Sciences, objects to having the quota-hours worked by each worker used instead of the KTU in determination of the brigade's overall earnings. He supports his objections by arguing that the problem of "profitable" and "unprofitable" operation remains acute even when the brigade is the form of organization of work. In his opinion, it ceases to be acute only in those brigades where there is no individual recording of output in quota-hours. However, having expressed this valid criticism, in his arguments the author comes to what seems to us an incorrect conclusion to the effect that the purpose of the KTU is not meant to resolve, but to bypass the problem of "profitable" and "unprofitable" operation. He feels that use of the KTU will be beneficial only when quotas of differing strenuousness are in effect, where it is not possible to objectively evaluate each worker's contribution to the overall achievements of the collective. Regarding the existence of quotas of differing strenuousness as a "stumbling block" on the way toward correct distribution of the collective earnings, Comrade Andriyenko proposes that an experiment be conducted in granting brigades the right to regulate their own output quotas in order to arrive at their equal strenuousness. Here the planning target would be set for the brigade according to the quotas in effect at the enterprise, but with respect to each work station the brigade would be given the right to correct them.

It seems to us that this considerably complicates the activity of the brigades, since they are also being given the duty to concern themselves (instead of the work norm setters) with improvement or correction of the quotas. It would be more correct (and this is in fact done in many brigades where the differing strenuousness of quotas inevitably has to be dealt with) to distribute more or less profitable operations uniformly among the workers. If this is not feasible because of the specialization of the individual workers, then the relative share of operations performed by each member of the brigade subject to the more strenuous output (time) quotas should be taken into account in the level of the KTU. After all, in the method of "self-correction" of the quotas proposed by Comrade Andriyenko the possibility of friction in the brigade because of their uneven strenuousness would presumably increase even more, since instead of a qualified and scientifically sound approach to work norm setting, a rather subjective method of evaluating the strenuousness of quotas will predominate.

Nor can one agree with the opinion the author has expressed that the forms of the organization of work and the forms of remuneration are at cross purposes. The organization of work by means of the brigade covered by a single job order helps to intensify collectivist principles in work, he writes. But in remuneration, in the author's opinion, the opposite tendency is more justified--the individual approach to establishing the level of remuneration. Possibly the author draws this conclusion from an analysis of the practice of those enterprises which have not yet managed to achieve a strengthening of incentives for improvement of the final results of the brigade's work and where they have been carried away with incentives tied to individual indicators. Unless these contradictions are overcome, one can hardly expect a better result from introduction of the brigade forms of the organization of work.

A. Tikhonov, chief of the department for the organization of work, work norm setting and labor productivity of the UzSSR State Committee for Labor and Social Problems, criticizes the method of determining the level of the KTU at the Verkh-Iselskiy Metallurgical Plant, expounded in the article by A. Gusev, I. Zubkov and Yu. Kryukov (No 8, 1982). He notes that a number of factors tending to increase the level of the KTU duplicate one another. The author proposes his own method of defining the KTU, for which he singles out three factors which in his view have decisive importance to increasing production efficiency: the individual productivity of labor, the individual quality of work, and individual discipline (production discipline and work discipline). He proposes that the state of these indicators be evaluated on a three-point scale: "low," "satisfactory" and "high." Definite numerical values would correspond to each of these ratings: 0--low; 0.15--satisfactory; 0.167--high. The maximum rating for each indicator for the month as a whole may not be higher than 0.67 (since the value of the KTU can range from 0 to 2). The factors are evaluated by the brigade leader by a spot check on each worker 3-4 times a month. The value of the KTU is determined by totaling up the results obtained. These figures are submitted for approval by the brigade council.

But the author does not tell us how the individual productivity of labor, the individual quality of work and individual production and work discipline are determined. And without such objective indicators the ratings submitted by the brigade leader for verification might be subjective in nature. He says nothing about how one can determine from those assessments of the individual qualities of the members of the brigade their contribution to the final results.

In the materials which S. Potemkin and F. Shigol' (Kharkov Engineering Economics Institute) sent to the editors the point of departure is the erroneous practice of those enterprises which are using so-called base coefficients for distribution of the entire earnings of the brigade; those coefficients are based on recording the level of wages of members of the brigade in the past (3, 6 or more months), without any sort of adjustment in accordance with the results of the activity of every member of the brigade during the period for which settlement is being made. This practice has a very limited sphere of application. Moreover, we know of quite a few examples where the base coefficients themselves are revised with the passage of a certain time by decision of the brigade so as to take into account the contribution of the workers to the overall results.

Certain authors are fascinated with the mere mechanics of the computations and propose their own methods in which calculation of the level of the KTU is essentially an end in itself, and the earnings of the brigade (all or part) have already been determined by some other method, without taking this coefficient into account. Why, then, one wonders, all these complicated calculations? After all, the only reason we in fact need the KTU is with its help to correctly, i.e., as objectively as possible, ascertain the contribution of each person to the overall results and on that basis to fairly distribute the earnings or a part of them (piece-rate supplement, bonus) as a collective. In addition, it must not be forgotten that the level of the KTU must be



computed not by specialists in economic statistics, but by the workers themselves, the brigade leaders and the brigade councils. That is why complicated calculations are inapplicable here.

In his critical remarks about methods of determining the level of the KTU Ya. Kravtsov, senior engineer of the Kaluga Chemical and Pharmaceutical Plant, takes as his point of departure the principle of correspondence between the number of members of the brigade and the sum of the work participation coefficient, which has been applied almost nowhere else. We noted in the last survey that this principle was not provided for in any of the directives or methods on the brigade form of the organization of work and incentives. Its use in practice, as the author points out, as a matter of fact does bring about an unjustified drop in the level of the KTU of certain members of the brigade solely because it has been quite justifiably raised for some one of them.

V. Rakoti, deputy chief of the wages department of the USSR State Committee for Labor and Social Problems, correctly pointed out in his article (No 1, 1982) that certain scientists and practitioners equate the worker's real contribution to the overall results with his individual output. But these are far from being one and the same thing. Individual output is only one of the factors characterizing the worker's real contribution. We have already spoken about how it is illegitimate to use only this indicator to determine the personal contribution to the overall results in the previous survey.

The contribution of every member of the brigade to the overall results of its work cannot be the same, especially in the first stages of the collective's evolution, when all its members are sizing one another up and are still not very clear about how their work will be rated by the collective. As they gain greater confidence in one another, as the less experienced and skilled workers are brought along to the level of the pacesetters, as consciousness increases and collectivism is reinforced, differences between the members of the brigade in their skill, their experience, their attitude toward work and the results of their work gradually even out. Consequently, improvement of the methods of distributing the entire brigade's earnings including the method involving the use of the KTU, must in our view go through the following stages. First--maximum differentiation of the level of the KTU on the basis of carefully developed criteria for evaluation of the good and bad aspects of the activity of every member of the brigade characterizing his contribution to the overall results. In the next stage, as a close-knit collective is shaped, differences in the levels of the KTU will be less sizable, since the skill of the workers and work in production discipline and, consequently, labor productivity will differ less sharply than in the initial period of the brigade's creation. In the stage of the higher level of development of the brigade form of the organization of work and incentives, when there is no need for economic coercion toward more productive work, the KTU and other methods of recording the personal work contribution to the overall results of work retain their importance because of the potential possibility they afford the collective of the brigade to take note of an outstanding contribution (or unexpected lapse) of its individual members. The quantity and quality of each one's work will be mainly measured by the same factors as in

the individual organization of work--by its wage rate class and the time worked.

Sometimes this question arises: Which period is it whose results are used to determine the KTU? At most enterprises this is done according to the results of work for the month. There are also cases where the level of the KTU is determined daily, when the appropriate conditions for this exist.

But we cannot but note that keeping a daily record of all the factors characterizing the effectiveness of the work by every member of the brigade and working out the daily levels of the KTU on this basis (or the cumulative point total) puts a great amount of additional work on the brigade leader to the detriment of his performance of his direct and immediate duties as a worker. Disturbing symptoms have already arisen in practice when brigade leaders are freed entirely of production work because of the greater complexity of recordkeeping and organizational functions. If this, forgive the expression, "progressive" method should become widespread, then our industry and other sectors of the economy (where it may also occur), which even now are experiencing a serious shortage of manpower, would be short many more thousands of the most skilled and experienced workers, which is what a majority of the brigade leaders are. Inevitably this will have an adverse effect on the overall indicators of labor productivity and also on the moral climate in the brigades, since their members have to "do all the work" of their leaders. That is why everything needs to be done to simplify the keeping of records in brigades, without detracting from the accuracy of the records.

The so-called "scale" method of determining the KTU so as to take into account the personal output of each member of the brigade and the work quality coefficient, which has been proposed by I. Stepanov (Sevastopol), seems to us very worthwhile in this regard. By means of a special scale that works like a slide rule it is possible to record simultaneously the individual output of every person (in percentages) and the  $K_{kt}$  attained (according to the system of defect-free work in effect at the enterprises). The level of each worker's KTU is quickly and easily determined depending on these indicators.

The virtue of the method proposed is that here the indicators of the activity of the collective of the brigade as a whole and of every member of the brigade individually are closely linked, since the level of every worker's KTU, other things being equal, depends on the overall results of the brigade's activity (level of fulfillment of quotas and the entire brigade's work quality coefficient). This close dependence tends to increase the motivation of every member of the brigade not only to improve the indicators of his own work but also to achieve high results of the collective as a whole.

The basis of the scale method of determining the KTU is a simple device the author developed, a slide rule made of transparent and hard Plexiglas that is convenient in its shape and size; levels of the  $K_{kt}$  are placed on the left, while on the right there are 20 columns with levels of the KTU. The upper part of the slide rule has moving strips which characterize the levels of fulfillment of quotas by the entire brigade and by the individual. There are

several of the removable strips; they differ in levels of fulfillment of quotas, which makes it possible for them to be used in sections with differing levels of work quotas. The levels of the KTU of individual workers found by means of this scale may be increased (or reduced) on the basis of another three indicators: the return of products to be redone, fulfillment of the assignment of the shift, and tutoring. The KTU adjusted in that way serves as the basis for distribution of the extra piece-rate pay and the bonus of the brigade. Use of this scale is so convenient that the results of work both of the brigade and of its individual members for any segment of time can be totaled up without investing a great deal of time.

To be sure, the method itself is not devoid of certain shortcomings. For instance, the author made no provision for determining the KTU when the level of fulfillment of quotas was less than 100 percent, nor when deviations of the level of individual output from that of the brigade average were sizable (that is, when the sliding strip must be moved far to the left of the value of the KTU equal to unity).

The letters to the editor used in the survey indicate that the problem of determining and applying the KTU is still a very topical one. At the same time the readers report that a great deal of experience has already been gained at enterprises in solving these problems and that the explorations in this direction are continuing.

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## DEMOGRAPHY

### POPULATION AND EDUCATION STATISTICS GIVEN

Moscow VESTNIK STATISTIKI In Russian No 7, Jul 83 pp 56; 61-62; 65-80

[Text] 1. ON THE 80TH ANNIVERSARY OF THE SECOND RSDPR [RUSSIAN SOCIAL DEMOCRATIC LABOR PARTY] CONGRESS -- SOME DATA ON THE ECONOMIC AND SOCIAL DEVELOPMENT OF THE USSR IN COMPARISON WITH THE PRE-REVOLUTIONARY PERIOD

"Our economic concerns are our overall concerns. It is the most interesting policy for us." V. I. Lenin

1. Population in Pre-revolutionary Russia and the USSR (at the beginning of the year; within the boundaries corresponding to the years)					
Years	Population Millions of People	In Particular		As a Percentage of the Entire Population	
		Urban Population	Rural Population	Urban Population	Rural Population
1870.....	86.3	9.5	76.8	11	89
1897.....	128.2	20.1	108.1	16	84
1913(at the end of the year)					
within the borders of the former Russian Empire.....	165.7	30.6	135.1	18	82
within the modern borders of the USSR	159.2	28.5	130.7	18	82
1940.....	194.1	63.1	131.0	33	67
1970*.....	241.7	136.0	105.7	56	44
1980.....	264.5	166.2	98.3	63	37
1983.....	271.2	174.6	96.6	64	36

\*On 15 Jan



2. Social Makeup of the Population (in percentages)							
	1913	1924	1939	1959	1970	1979	1982
Total population (including non-working family members.....)	100	100	100	100	100	100	100
In particular:							
laborers and office workers.....	17.0	14.8	50.2	68.3	79.5	85.1	86.7
laborers in the above.....	14.0	10.4	33.7	50.2	57.4	60.0	60.9
kolkhoz peasantry and cooperative handicraft workers*.....	--	1.3	47.2	31.4	20.5	14.9	13.3
individual peasants and non-cooperative peasants.....	66.7	75.4	2.6	0.3	0.0	0.0	0.0
merchants and kulaks.....	16.3	8.5	--	--	--	--	--
*Cooperative handicraft workers, i.e. members of artels in producers' co-operatives together with the non-working members of their families, amounted to 0.5 percent in 1924 and 2.3 percent in 1939 of the total population. Since 1959 they have been included in the number of laborers and office workers in connection with the transfer of former artels in producers' cooperatives to the system of state enterprises.							

There are two friendly classes in the USSR--the worker class and kolkhoz peasantry. A substantial portion of the population is made up of the intelligentsia--workers who use their mental faculties. In 1926 there were less than 3 million workers who were engaged primarily in mental work while at the present time they number more than 42 million workers.

A new historical community of people has been formed in our country--the soviet people. "The chief result of the creative activity of the soviet people under the leadership of the Communist Party is the construction of developing socialism in the USSR" (from the CPSU Central Committee decree "Concerning the 80th Anniversary of the second RSDPR Congress").

Yu. B. Andropov stated at the June (1983) plenum of the CPSU Central Committee, "For a correct understanding of the long-range outlook--in economics, policy and ideology--one must first of all clearly conceive of the nature of this stage of social development at which we are now situated. The party defined this to be the stage of developing socialism. This is a society where an economic base, social structure, political system, and the corresponding socialist principles have already been completely formed, and where socialism is developing, as they like to say, on its own collective foundation."

9. Number of People With a Higher and Secondary Education (complete or incomplete)										
	Millions of People					Per 1000 People Age 10 or Older				
	1939	1959	1970	1979	1983	1939	1959	1970	1979	1983
All people having a higher or secondary education (complete or incomplete).....	15.9	58.7	95.0	139.1	152.3	108	361	483	638	678
In particular:										
complete higher.....	1.2	3.8	8.3	14.8	17.8	8	23	42	68	79
incomplete higher....	14.7	1.7	2.6	3.2	3.5	100	11	13	15	16
specialized secondary	14.7	7.9	13.4	23.5	27.2	100	48	68	107	121
general secondary....	14.7	9.9	23.4	45.1	56.4	100	61	119	207	251
incomplete secondary	14.7	35.4	47.3	52.5	47.4	100	218	241	241	211

In pre-revolutionary Russia there were only about 290,000 people who had a higher, incomplete higher, or specialized secondary education.

Based on the data from the only general census of the population from pre-revolutionary Russia (1897) 76 percent of the population age 9 or older and 88 percent of the women were illiterate. Many peoples of Central Asia and other regions of tsarist Russia were almost completely illiterate. The number of people that received more than an elementary education amounted to only 1.4 million people in all of tsarist Russia; these were primarily capitalists, landowners, bureaucrats, ministers and members of their families.

10. Education Level of the Employed Population					
	1939	1959	1970	1979	1983
Those having an education per 1000 employed:					
higher and secondary (complete or incomplete):					
Total population.....	123	433	653	805	858
Urban population.....	242	564	748	863	894
Rural population.....	63	316	499	693	779
higher:					
Total population.....	13	33	65	100	113
Urban population.....	32	59	90	130	142
Rural population.....	3	11	25	42	50
secondary:					
Total population.....	110	400	588	705	745
Urban population.....	210	505	658	733	752
Rural population.....	60	305	474	651	729

11. Number of Students in Higher Educational Institutions By Union Republics at the Beginning of the Academic Year (thousands of people)					
	1914/15	1940/41	1970/71	1980/81	1982/83
USSR.....	127.4	811.7	4580.6	5235.2	5315.2
RSFSR.....	86.5	478.1	2671.7	3045.8	3073.5
Ukrainian SSR.....	35.2	196.8	806.6	880.4	884.9
Belorussian SSR.....	--	21.5	140.0	177.0	182.2
Uzbek SSR.....	--	19.1	232.9	278.1	288.8
Kazakh SSR.....	--	10.4	198.9	260.0	275.6
Georgian SSR.....	0.3	28.5	89.3	85.8	89.0
Azerbaijan SSR.....	--	14.6	100.1	107.0	110.0
Lithuanian SSR.....	--	6.0	57.0	71.0	71.1
Moldavian SSR.....	--	2.5	44.8	51.3	53.4
Latvian SSR.....	2.1	9.9	40.8	47.2	46.6
Kirghiz SSR.....	--	3.1	48.4	55.4	58.9
Tajik SSR.....	--	2.3	44.5	56.8	57.9
Armenian SSR.....	--	11.1	54.4	58.1	59.2
Turkmen SSR.....	--	3.0	29.1	35.8	38.7
Estonian SSR.....	3.3	4.8	22.1	25.5	25.4

12. Number of Pupils in Specialized Secondary Educational Institutions  
By Union Republics at the Beginning of the Academic Year  
(thousands of people)

	1914/15	1940/41	1970/71	1980/81	1982/83
USSR.....	54.3	974.8	4388.0	4611.7	4517.7
RSFSR.....	35.4	594.0	2606.2	2641.6	2543.0
Ukrainian SSR.....	12.5	196.2	797.9	803.1	795.4
Belorussian SSR.....	1.4	35.0	146.1	162.8	162.1
Uzbek SSR.....	0.1	25.1	163.3	237.7	251.5
Kazakh SSR.....	0.3	30.3	217.9	265.4	274.0
Georgian SSR.....	0.5	26.1	53.1	53.4	52.8
Azerbaijan SSR.....	0.5	17.4	70.8	79.0	78.7
Lithuanian SSR.....	1.5	6.4	65.3	68.4	64.6
Moldavian SSR.....	0.5	4.1	51.7	58.9	59.1
Latvian SSR.....	1.3	9.6	38.8	42.2	40.6
Kirghiz SSR.....	--	6.0	41.7	49.4	50.6
Tajik SSR.....	--	5.9	35.3	40.1	39.2
Armenian SSR.....	0.1	8.9	47.1	51.8	48.1
Turkmen SSR.....	--	7.7	28.7	34.0	34.6
Estonian SSR.....	0.2	2.1	24.1	23.9	23.4



**13. Number of Physicians Among All Specialists**  
(thousands of people)

	1913	1940	1970	1980	1982
USSR.....	28.1	155.3	668.4	997.1	1071.2
RSFSR.....	15.9	90.8	378.4	560.7	599.3
Ukrainian SSR.....	7.8	35.3	131.0	182.7	195.6
Belorussian SSR.....	1.2	5.2	23.4	32.7	34.6
Uzbek SSR.....	0.14	3.2	24.4	46.0	52.3
Kazakh SSR.....	0.2	2.7	28.8	47.8	51.9
Georgian SSR.....	0.5	4.9	17.1	24.2	26.0
Azerbaijan SSR.....	0.4	3.3	13.1	20.7	22.4
Lithuanian SSR.....	0.4	2.0	8.7	13.4	14.2
Moldavian SSR.....	0.3	1.1	7.4	12.5	13.8
Latvian SSR.....	0.6	2.5	8.5	11.1	11.7
Kirghiz SSR.....	0.02	0.6	6.2	10.6	11.7
Tajik SSR.....	0.02	0.6	4.7	9.4	10.6
Armenian SSR.....	0.07	1.0	7.3	10.9	11.6
Turkmen SSR.....	0.07	1.0	4.8	8.2	8.9
Estonian SSR.....	0.5	1.1	4.6	6.2	6.6

## II. PUBLIC EDUCATION IN THE USSR

1. General Education Day Schools by Union Republics At the Beginning of the 1982/83 Academic Year (thousands)				
	Number of Schools		In Particular Secondary Schools	
	In Urban Areas	In Rural Areas	In Urban Areas	In Rural Areas
USSR.....	32.2	98.3	23.8	34.3
RSFSR.....	17.8	49.6	12.7	14.5
Ukrainian SSR.....	5.9	15.2	4.1	4.5
Belorussian SSR.....	1.0	5.3	0.9	1.5
Uzbek SSR.....	1.4	6.1	1.2	4.2
Kazakh SSR.....	1.6	6.3	1.3	2.7
Georgian SSR.....	0.7	3.0	0.7	1.1
Azerbaijan SSR.....	0.8	3.3	0.6	1.5
Lithuanian SSR.....	0.5	1.7	0.4	0.2
Moldavian SSR.....	0.3	1.3	0.3	0.6
Latvian SSR.....	0.4	0.5	0.2	0.1
Kirghiz SSR.....	0.3	1.3	0.2	0.9
Tajik SSR.....	0.4	2.3	0.3	1.1
Armenian SSR.....	0.5	0.9	0.4	0.6
Turkmen SSR.....	0.4	1.2	0.3	0.8
Estonian SSR.....	0.2	0.3	0.2	--

2. Graduates From General Education Day Schools in 1982 (thousands of people)				
	Completed Grammar School		Completed Secondary School	
	In Urban Areas	In Rural Areas	In Urban Areas	In Rural Areas
USSR.....	2,130	1,805	1,290	1,175
RSFSR.....	1,122	649	652	423
Ukrainian SSR.....	394	288	241	144
Belorussian SSR.....	77	68	52	43
Uzbek SSR.....	118	245	74	181
Kazakh SSR.....	123	163	74	111
Georgian SSR.....	38	43	30	35
Azerbaijan SSR.....	59	85	41	59
Lithuanian SSR.....	35	18	21	7
Moldavian SSR.....	20	46	12	24
Latvian SSR.....	22	9	13	2
Kirghiz SSR.....	22	56	13	40
Tajik SSR.....	27	67	19	53
Armenian SSR.....	31	25	23	19
Turkmen SSR.....	28	39	16	33
Estonian SSR.....	14	4	9	1

3. Number of Pupils in General Education Day Schools Left Back During the 1981/82 Academic Year			
	Thousands of People		Thousands of People
Grade 1.....	37	Grade 7.....	12
Grade 2.....	14	Grade 8.....	10
Grade 3.....	9	Grade 9.....	14
Grade 4.....	11	Grade 10.....	2
Grade 5.....	9	Grade 11.....	0.1
Grade 6.....	11	Grades 1-10 (11)..	129

**4. Extended Day Schools By Union Republics  
At the Beginning of the 1982/83 Academic Year**

	Number of Extended Day Schools and Schools With Ex- tended Day Groups		Number of Pupils in Extended Day Groups, thousands		As a Percentage Of Pupils in Grades 1-8	
	In Urban Areas	In Rural Areas	In Urban Areas	In Rural Areas	In Urban Areas	In Rural Areas
USSR.....	27,773	56,063	6,098	5,730	31	40
RSFSR.....	15,277	24,654	3,190	2,127	31	44
Ukrainian SSR.....	5,225	10,902	1,301	1,169	37	56
Belorussian SSR.....	897	2,392	182	180	25	40
Uzbek SSR.....	1,308	5,474	431	855	38	37
Kazakh SSR.....	1,394	4,421	315	534	28	37
Georgian SSR.....	569	886	57	66	14	19
Azerbaijan SSR.....	720	2,001	146	212	29	33
Lithuanian SSR.....	380	518	63	34	21	25
Moldavian SSR.....	263	1,019	81	166	40	45
Latvian SSR.....	304	400	55	28	27	42
Kirghiz SSR.....	224	777	57	119	28	23
Tajik SSR.....	301	1,177	71	119	27	18
Armenian SSR.....	416	576	71	61	25	34
Turkmen SSR.....	306	659	47	46	18	12
Estonian SSR.....	189	207	31	14	24	37

**5. Number of Pupils in Secondary Educational Institutions Studying For  
A Secondary Education at the Beginning of the 1982/83 Academic Year**

	Thousands Of People	As a Percentage of the Total
Total being taught.....	13,329	100
In particular:		
in grades 9-10 (11) in general education day schools.....	4,887	36.7
in grades 9-10 (11) in evening (shift) general education schools.....	4,207	31.6
in secondary professional and technical schools.....	2,312	17.3
in primary departments of specialized secondary education institutions.....	1,923	14.4



6. Higher Education Institutions by Sector Groups of Education Institutions  
By Union Republics at the Beginning of the 1982/82 Academic Year

	Total Higher Education Institutions	In Particular Education Institutions						
		Industry and Construction	Transport and Communications	Agriculture	Health Care, Physical Fitness and Sports	Education	Art and Cinematography	Economics and Law
USSR.....	891	232	46	104	57	106	288	58
RSFSR.....	500	151	29	58	33	55	148	26
Ukrainian SSR..	146	40	10	17	10	18	42	9
Belorussian SSR	33	9	1	4	3	4	10	2
Uzbek SSR.....	43	5	3	4	3	6	20	2
Kazakh SSR.....	55	12	2	7	3	6	23	2
Georgian SSR...	19	2	--	3	--	2	9	3
Azerbaijan SSR	18	4	--	1	2	2	7	2
Lithuanian SSR	12	2	--	2	1	2	3	2
Moldavian SSR..	8	1	--	1	--	1	4	1
Latvian SSR....	10	1	1	1	--	2	3	2
Kirghiz SSR....	10	1	--	1	--	2	5	1
Tajik SSR.....	10	1	--	1	--	2	5	1
Armenian SSR...	13	1	--	2	1	2	5	2
Turkmen SSR....	8	1	--	1	1	2	2	1
Estonian SSR...	6	1	--	1	--	--	2	2

**7. Specialized Secondary Education Institutions by Sector Groups of Education Institutions By Union Republics at the Beginning of the 1982/82 Academic Year**

	Total Specialized Secondary Education Institutions	In Particular Education Institutions						
		Industry and Construction	Transport and Communications	Agriculture	Health Care, Physical Fitness and Sports	Education	Art and Cinematography	Economics and Law
USSR.....	4,418	1,486	255	673	391	658	598	357
RSFSR.....	2,520	929	150	314	188	392	364	183
Ukrainian SSR..	728	247	48	104	101	108	72	48
Belorussian SSR	138	40	7	25	15	19	19	13
Uzbek SSR.....	236	63	9	53	24	29	42	16
Kazakh SSR.....	240	61	17	49	20	32	40	21
Georgian SSR...	90	21	3	22	6	14	6	18
Azerbaijan SSR	75	19	3	19	4	10	9	11
Lithuanian SSR	67	18	2	22	5	6	7	7
Moldavian SSR..	51	13	2	12	5	8	7	4
Latvian SSR....	55	8	5	17	3	9	2	11
Kirghiz SSR....	42	10	1	6	4	9	7	5
Tajik SSR.....	38	11	--	3	5	7	9	3
Armenian SSR...	66	30	4	9	4	7	4	8
Turkmen SSR....	35	8	2	6	3	5	6	5
Estonian SSR...	37	8	2	12	4	3	4	4

## COMPOSITION OF FAMILIES\*

COMPOSITION OF FAMILIES*									
Distribution of Families by Their Size and Nationality of Family Members by Union Republics									
	Number of Families	In Particular Families Consisting of The Following Living Together:							Average Size of the Family
		2	3	4	5	6	7		
		People	People	People	People	People	People		
Kazakh SSR									
Urban and rural population									
All Families.....	3,293,878	696,654	812,999	774,914	400,605	223,195	385,511		4.1
Families where all members belong to one nationality.....	2,584,569	567,400	615,998	569,770	302,858	181,352	347,191		4.2
Of the above, families where all members are:									
Kazakhs.....	860,436	92,377	120,318	137,519	124,780	108,423	277,019		5.5
Russians.....	1,261,062	364,627	390,930	328,688	118,036	38,609	20,172		3.3
Germans.....	150,746	36,095	35,309	35,719	21,904	11,670	10,049		3.8
Ukrainians.....	105,315	36,361	29,171	24,648	9,792	3,445	1,898		3.3
Tatars.....	46,543	10,845	11,692	12,546	6,509	2,862	2,089		3.7
Uzbeks.....	35,028	2,711	3,268	4,388	4,531	4,981	15,149		6.2
Families where members belong to different nationalities.....	709,309	129,254	197,001	205,144	97,747	41,843	38,320		3.8
Urban population									
All Families.....	1,923,686	456,597	556,160	509,178	210,117	89,662	101,972		3.7
Families where all members belong to one nationality.....	1,463,570	369,552	417,533	368,412	152,751	68,823	86,499		3.7
Of the above, families where all members are:									
Kazakhs.....	264,213	32,317	44,547	51,745	42,203	31,546	61,855		5.0
Russians.....	968,123	277,225	313,264	258,875	83,238	24,455	11,066		3.3
Germans.....	63,759	16,330	15,945	15,840	8,669	3,985	2,990		3.7
Ukrainians.....	58,828	20,108	18,100	14,924	4,161	1,076	459		3.1
Tatars.....	36,121	8,761	9,503	10,151	4,795	1,860	1,051		3.6
Uzbeks.....	11,929	1,074	1,299	1,811	1,741	1,763	4,241		5.8
Families where members belong to different nationalities.....	460,116	87,045	138,627	140,766	57,366	20,839	15,473		3.7

\*Continuation of the publication of the census results in VESTNIK STATISTIKI Magazine (for the beginning, see No. 2, 6-12, for 1980; No. 1, 2, 4, 11, 12 for 1981; No. 1, 7, 9, 10 for 1982 and No. 2, 4, 6 for 1983); data on the distribution of families in the USSR by their size and nationality of members is in VESTNIK STATISTIKI No. 12 for 1981; for the RSFSR, UKSSR, BSSR, and UzSSR in No. 12 for 1983.

	Number of Families	In Particular Families Consisting of The Following Living Together:						Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People	
Rural population								
All Families.....	1,370,192	240,057	256,839	265,736	190,488	133,533	283,539	4.7
Families where all members belong to one nationality.....	1,120,999	197,848	198,465	201,358	150,107	112,529	260,692	4.9
Of the above, families where all members are:								
Kazakhs.....	596,223	60,060	75,771	85,774	82,577	76,877	215,164	5.7
Russians.....	292,939	87,402	77,666	69,813	34,798	14,154	9,106	3.5
Germans.....	86,987	19,765	19,364	19,879	13,235	7,685	7,059	4.0
Ukrainians.....	46,487	16,253	11,071	9,724	5,631	2,369	1,439	3.4
Tatars.....	10,422	2,084	2,189	2,395	1,714	1,002	1,038	4.1
Uzbeks.....	23,099	1,637	1,969	2,577	2,790	3,218	10,908	6.4
Families where members belong to different nationalities.....	249,193	42,209	58,374	64,378	40,381	21,004	22,847	4.1
Georgian SSR								
Urban and rural population								
All Families.....	1,150,836	243,199	228,745	287,510	192,263	112,413	86,706	4.0
Families where all members belong to one nationality.....	1,030,716	220,101	201,986	256,698	173,177	101,579	77,175	4.0
Of the above, families where all members are:								
Georgians.....	750,430	154,618	146,490	195,342	129,622	73,701	50,657	4.0
Abkhazi.....	14,985	2,745	2,733	3,094	2,550	1,825	2,038	4.4
Osetins.....	29,738	6,741	5,605	7,080	5,606	3,008	1,638	4.0
Armenians.....	84,234	16,069	15,581	20,221	15,783	9,547	7,033	4.2
Russians.....	70,104	26,973	19,388	15,457	5,318	2,046	922	3.1
Azerbaijanis.....	44,325	4,572	5,062	7,100	8,519	7,799	11,273	5.2
Families where members belong to different nationalities.....	120,120	23,098	26,759	30,812	19,086	10,834	9,531	4.1



	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Urban population							
All Families.....	603,874	129,403	130,556	170,874	93,245	47,653	32,143
Families where all members belong to one nationality.....	510,158	111,003	109,050	145,893	78,871	39,872	25,469
Of the above, families where all members are:							
Georgians.....	352,086	66,960	73,003	107,308	57,653	29,302	17,860
Abkhazi.....	5,266	1,128	1,241	1,362	863	402	270
Osetins.....	14,160	2,559	2,846	4,272	2,804	1,141	538
Armenians.....	46,573	10,491	9,538	12,109	7,756	3,987	2,692
Russians.....	59,979	23,130	16,396	13,375	4,573	1,744	761
Azerbaijanis.....	8,002	1,015	1,151	1,634	1,685	1,244	1,273
Families where members belong to different nationalities.....	93,716	18,400	21,506	24,981	14,374	7,781	6,674
Rural population							
All Families.....	546,962	113,796	98,189	116,636	99,018	64,760	54,563
Families where all members belong to one nationality.....	520,558	109,098	92,936	110,805	94,306	61,707	51,706
Of the above, families where all members are:							
Georgians.....	398,344	87,658	73,487	88,034	71,969	44,399	32,797
Abkhazi.....	9,719	1,617	1,492	1,732	1,687	1,423	1,768
Osetins.....	15,578	4,182	2,759	2,808	2,802	1,867	1,160
Armenians.....	37,661	5,578	6,043	8,112	8,027	5,560	4,341
Russians.....	10,125	3,843	2,992	2,082	745	302	161
Azerbaijanis.....	36,323	3,557	3,911	5,466	6,834	6,555	10,000
Families where members belong to different nationalities.....	26,404	4,698	5,253	5,831	4,712	3,053	2,857

	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Azerbaijan SSR							
Urban and rural population							
All Families.....	1,102,712	165,270	161,194	191,110	168,083	141,387	275,668
Families where all members belong to one nationality.....	1,018,549	151,054	142,970	170,700	155,111	133,272	265,442
Of the above, families where all members are:							
Azerbaijanis.....	775,319	91,112	91,900	117,934	120,128	111,733	242,512
Armenians.....	93,814	18,790	16,991	21,132	17,501	10,670	8,730
Russians.....	96,499	32,188	25,818	22,395	9,543	4,299	2,256
Lezgins.....	24,180	2,719	2,842	3,662	4,019	3,766	7,172
Families where members belong to different nationalities.....	84,163	14,216	18,224	20,410	12,972	8,115	10,226
Urban population							
All Families.....	626,961	109,435	111,331	132,899	104,110	73,852	95,334
Families where all members belong to one nationality.....	551,100	96,095	94,210	113,678	92,361	66,916	87,840
Of the above, families where all members are:							
Azerbaijanis.....	364,151	47,557	51,166	69,128	65,780	52,862	77,658
Armenians.....	69,512	12,672	13,206	17,392	13,624	7,418	5,200
Russians.....	90,932	30,040	24,613	21,480	8,943	3,935	1,921
Lezgins.....	9,035	1,069	1,193	1,698	1,829	1,509	1,737
Families where members belong to different nationalities.....	75,861	13,340	17,121	19,221	11,749	6,936	7,494

	Number of Families	In Particular Families Consisting of The Following Living Together:							Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People		
Rural population									
All Families.....	475,751	55,835	49,863	58,211	63,973	67,535	180,334	5.8	
Families where all members belong to one nationality.....	467,449	54,959	48,760	57,022	62,750	66,356	177,602	5.8	
Of the above, families where all members are:									
Azerbaijanis.....	411,168	43,555	40,734	48,806	54,348	58,871	164,854	5.9	
Armenians.....	24,302	6,118	3,785	3,740	3,877	3,252	3,530	4.3	
Russians.....	5,567	2,148	1,205	915	600	364	335	3.5	
Lezgins.....	15,145	1,650	1,649	1,964	2,190	2,257	5,435	5.6	
Families where members belong to different nationalities.....	8,302	876	1,103	1,189	1,223	1,179	2,732	5.6	
Lithuanian SSR									
Urban and rural population									
All Families.....	901,044	286,928	262,989	228,594	82,117	26,357	14,059	3.3	
Families where all members belong to one nationality.....	799,040	265,427	229,233	197,853	71,475	22,958	12,094	3.3	
Of the above, families where all members are:									
Lithuanians.....	683,249	225,430	193,848	170,615	62,604	20,178	10,574	3.3	
Russians.....	53,356	19,103	18,234	11,998	2,942	765	314	3.0	
Poles.....	48,506	15,885	12,846	11,915	5,069	1,783	1,008	3.3	
Belorussians.....	6,349	2,198	1,943	1,648	433	84	43	3.1	
Families where members belong to different nationalities.....	102,004	21,501	33,756	30,741	10,642	3,399	1,965	3.5	

	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Urban population							
All Families.....	535,425	151,754	172,229	151,368	43,881	11,458	4,735
Families where all members belong to one nationality.....	453,969	134,687	144,111	126,400	36,110	9,169	3,492
Of the above, families where all members are:							
Lithuanians.....	376,009	108,396	118,115	107,185	31,283	8,034	2,996
Russians.....	46,740	16,364	16,354	10,789	2,441	583	209
Poles.....	19,444	5,650	5,910	5,594	1,715	402	173
Belorussians.....	5,051	1,788	1,578	1,332	298	39	16
Families where members belong to different nationalities.....	81,456	17,067	28,118	24,968	7,771	2,289	1,243
Rural population							
All Families.....	365,619	135,174	90,760	77,226	38,236	14,899	9,324
Families where all members belong to one nationality.....	345,071	130,740	85,122	71,453	35,365	13,789	8,602
Of the above, families where all members are:							
Lithuanians.....	307,240	117,034	75,733	63,430	31,321	12,144	7,578
Russians.....	6,616	2,739	1,880	1,209	501	182	105
Poles.....	29,062	10,235	6,936	6,321	3,354	1,381	835
Belorussians.....	1,298	410	365	316	135	45	27
Families where members belong to different nationalities.....	20,548	4,434	5,638	5,773	2,871	1,110	722



	Number of Families	In Particular Families Consisting of The Following Living Together:							Average Size of the Family
		2	3	4	5	6	7		
		People	People	People	People	People	People		
Moldavian SSR									
Urban and rural population									
All Families.....	1,024,397	315,270	289,027	236,823	101,266	44,298	37,713	3.4	
Families where all members belong to one nationality.....	809,627	263,346	218,102	177,812	80,559	36,970	32,838	3.4	
Of the above, families where all members are:									
Moldavians.....	569,266	174,345	147,283	127,124	63,121	29,936	27,457	3.5	
Ukrainians.....	96,723	38,742	28,018	20,832	6,192	1,874	1,065	3.1	
Russians.....	78,568	31,108	26,199	16,051	3,836	968	406	3.0	
Gagauzi.....	24,999	4,854	5,143	5,630	3,914	2,580	2,878	4.2	
Bolgars.....	12,744	3,488	3,073	2,927	1,768	987	501	3.6	
Families where members belong to different nationalities.....	214,770	51,924	70,925	59,011	20,707	7,328	4,875	3.4	
Urban population									
All Families.....	399,857	120,031	136,193	101,008	28,451	8,770	5,404	3.2	
Families where all members belong to one nationality.....	255,827	85,372	84,697	60,303	16,754	5,314	3,387	3.2	
Of the above, families where all members are:									
Moldavians.....	106,020	29,978	35,605	27,726	8,247	2,668	1,796	3.3	
Ukrainians.....	44,833	15,773	15,106	11,033	2,236	475	210	3.0	
Russians.....	67,480	26,646	23,104	13,728	3,042	694	266	2.9	
Gagauzi.....	8,655	1,881	2,028	2,114	1,279	740	613	3.9	
Bolgars.....	3,462	927	889	836	439	242	129	3.6	
Families where members belong to different nationalities.....	144,030	34,659	51,496	40,705	11,697	3,456	2,017	3.3	





	Number of Families	In Particular Families Consisting of The Following Living Together:						Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People	
Kirghiz SSR								
Urban and rural population								
All Families.....	702,678	131,866	141,080	137,824	88,135	61,415	142,358	4.6
Families where all members belong to one nationality.....	594,054	111,171	114,035	110,543	73,068	53,764	131,473	4.7
Of the above, families where all members are:								
Kirghiz.....	267,672	28,111	34,104	38,662	37,554	34,508	94,733	5.7
Russians.....	197,489	59,955	59,397	50,246	19,004	5,917	2,970	3.3
Uzbeks.....	60,440	5,697	5,926	7,478	8,030	8,179	25,130	6.1
Ukrainians.....	12,528	6,008	3,238	2,172	761	240	109	2.9
Tatars.....	12,309	3,240	3,280	3,122	1,569	694	404	3.6
Families where members belong to different nationalities.....	108,624	20,695	27,045	27,281	15,067	7,651	10,885	4.1
Urban population								
All Families.....	306,285	73,742	80,257	73,218	35,722	17,947	25,399	3.8
Families where all members belong to one nationality.....	240,232	60,237	62,019	55,342	26,981	14,148	21,505	3.9
Of the above, families where all members are:								
Kirghiz.....	45,517	6,266	7,310	8,710	7,605	5,709	9,417	4.8
Russians.....	138,226	42,078	43,027	35,555	12,293	3,504	1,769	3.3
Uzbeks.....	21,709	2,309	2,537	3,132	3,036	2,955	7,740	5.7
Ukrainians.....	6,531	2,878	1,941	1,275	325	75	37	2.9
Tatars.....	10,533	2,795	2,870	2,698	1,314	549	307	3.5
Families where members belong to different nationalities.....	66,053	13,505	18,238	17,876	8,741	3,799	3,894	3.8



	Number of Families	In Particular Families Consisting of The Following Living Together:						Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People	
Rural population								
All Families.....	396,393	58,124	60,823	64,606	52,413	43,468	116,959	5.3
Families where all members belong to one nationality.....	353,822	50,934	52,016	55,201	46,087	39,616	109,968	5.3
Of the above, families where all members are:								
Kirghiz.....	222,155	21,845	26,294	29,952	29,949	28,799	85,316	5.8
Russians.....	59,263	17,877	16,370	14,691	6,711	2,413	1,201	3.4
Uzbeks.....	38,731	3,388	3,389	4,346	4,994	5,224	17,390	6.3
Ukrainians.....	5,997	3,130	1,297	897	436	165	72	2.9
Tatars.....	1,776	445	410	424	255	145	97	3.8
Families where members belong to different nationalities.....	42,571	7,190	8,807	9,405	6,326	3,852	6,991	4.5
Tajik SSR								
Urban and rural population								
All Families.....	636,402	83,106	89,695	95,996	75,704	66,085	225,816	5.7
Families where all members belong to one nationality.....	553,357	70,462	72,131	77,051	64,368	59,217	210,128	5.8
Of the above, families where all members are:								
Tajiks.....	306,969	23,732	26,171	32,310	36,397	38,474	149,885	6.6
Uzbeks.....	119,204	10,241	11,132	14,048	14,894	15,305	53,584	6.3
Russians.....	83,622	26,697	25,494	21,043	7,259	2,159	970	3.2
Tatars.....	13,910	3,632	3,652	3,578	1,826	738	484	3.6
Kirghiz.....	7,202	689	891	1,036	895	930	2,761	5.8
Families where members belong to different nationalities.....	83,045	12,644	17,564	18,945	11,336	6,868	15,688	4.7

	Number of Families	In Particular Families Consisting of The Following Living Together:							Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People		
Urban population									
All Families.....	265,978	53,648	57,559	56,782	32,331	20,154	45,504	4.5	
Families where all members belong to one nationality.....	204,630	42,888	42,377	40,707	23,770	15,904	38,984	4.6	
Of the above, families where all members are:									
Tajiks.....	74,197	7,124	7,993	9,958	9,966	9,650	29,506	6.0	
Uzbeks.....	18,753	1,947	2,256	2,752	2,622	2,335	6,841	5.8	
Russians.....	79,757	25,483	24,377	20,101	6,870	2,027	899	3.2	
Ukrainians.....	12,835	3,378	3,426	3,334	1,661	636	400	3.5	
Tatars.....	825	73	101	141	95	108	307	5.7	
Families where members belong to different nationalities.....	61,348	10,760	15,182	16,075	8,561	4,250	6,520	4.2	
Rural population									
All Families.....	370,424	29,458	32,136	39,214	43,373	45,931	180,312	6.6	
Families where all members belong to one nationality.....	348,727	27,574	29,754	36,344	40,598	43,313	171,144	6.6	
Of the above, families where all members are:									
Tajiks.....	232,772	16,608	18,178	22,352	26,431	28,824	120,379	6.8	
Uzbeks.....	100,451	8,294	8,876	11,296	12,272	12,970	46,743	6.4	
Russians.....	3,865	1,214	1,117	942	389	132	71	3.3	
Tatars.....	1,075	254	226	244	165	102	84	4.0	
Kirghiz.....	6,377	616	790	895	800	822	2,454	5.8	
Families where members belong to different nationalities.....	21,697	1,884	2,382	2,870	2,775	2,618	9,168	6.2	

	Number of families	In Particular Families consisting of The Following Living Together:						Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People	
Armenian 88								
Urban and rural population								
All Families.....	609,372	74,471	85,267	140,926	125,329	91,462	91,917	4.7
Families where all members belong to one nationality.....	585,001	71,601	80,944	134,511	120,876	88,539	88,530	4.7
Of the above, families where all members are:								
Armenians.....	537,961	64,692	74,212	126,763	114,537	82,543	75,214	4.7
Azerbaijanis.....	26,378	2,715	2,646	3,322	3,790	4,239	9,666	5.7
Russians.....	10,726	3,143	2,910	2,847	1,070	466	290	3.4
Kurds.....	7,247	483	584	899	1,082	1,044	3,155	6.3
Families where members belong to different nationalities.....	24,371	2,870	4,323	6,415	4,453	2,923	3,387	4.6
Urban population								
All Families.....	415,229	52,665	63,181	108,886	88,266	58,036	44,195	4.5
Families where all members belong to one nationality.....	395,078	50,195	59,402	103,176	84,548	55,713	42,044	4.5
Of the above, families where all members are:								
Armenians.....	379,584	46,723	55,892	99,327	82,568	54,436	40,638	4.5
Azerbaijanis.....	2,776	382	387	502	510	462	533	4.9
Russians.....	9,078	2,557	2,484	2,538	905	386	208	3.4
Kurds.....	1,617	126	163	262	274	251	541	5.9
Families where members belong to different nationalities.....	20,151	2,470	3,779	5,710	3,718	2,323	2,151	4.4

	Number of families	In Particular Families Consisting of The Following Living Together:						Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People	
Rural population								
All families.....	194,143	21,806	22,086	32,040	37,063	33,426	47,722	5.2
Families where all members belong to one nationality.....	189,923	21,406	21,542	31,335	36,328	32,826	46,486	5.2
Of the above, families where all members are:								
Armenians.....	158,377	17,969	18,320	27,436	31,969	28,107	34,576	5.1
Azerbaijanis.....	23,602	2,333	2,259	2,820	3,280	3,777	9,133	5.8
Russians.....	1,648	586	426	309	165	80	82	3.4
Kurds.....	5,630	357	421	637	808	793	2,614	6.4
Families where members belong to different nationalities.....	4,220	400	544	705	735	600	1,236	5.4
Turkmen SSR								
Urban and rural population								
All families.....	475,111	65,753	72,969	76,804	56,876	48,796	153,913	5.5
Families where all members belong to one nationality.....	416,767	55,836	58,998	62,258	49,013	44,424	146,238	5.6
Of the above, families where all members are:								
Turkmen.....	275,855	23,631	26,605	32,608	34,412	35,235	123,164	6.3
Russians.....	73,909	23,411	22,854	18,840	6,189	1,942	873	3.2
Uzbeks.....	29,967	2,324	2,656	3,268	3,550	3,848	14,321	6.5
Karakalpakhs.....	11,426	882	1,175	1,539	1,509	1,458	4,863	6.2
Tatars.....	5,689	1,548	1,423	1,433	772	333	180	3.6
Families where members belong to different nationalities.....	58,344	9,917	13,971	14,546	7,863	4,372	7,675	4.3



	Number of Families	In Particular Families Consisting of The Following Living Together:							Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People		
Urban population									
All Families.....	257,336	47,407	52,940	52,961	31,333	21,872	50,823	4.6	
Families where all members belong to one nationality.....	206,244	38,247	39,966	39,545	24,431	18,365	45,690	4.8	
Of the above, families where all members are:									
Turkmen.....	89,059	8,226	9,930	12,623	12,419	11,938	33,923	5.9	
Russians.....	72,048	22,646	22,244	18,348	6,058	1,905	847	3.2	
Uzbeks.....	16,043	1,436	1,723	2,067	2,062	2,078	6,677	6.1	
Kazakhs.....	7,453	617	868	1,104	1,036	971	2,857	5.9	
Tatars.....	5,411	1,474	1,350	1,377	741	313	156	3.6	
Families where members belong to different nationalities.....	51,092	9,160	12,974	13,416	6,902	3,507	5,133	4.1	
Rural population									
All Families.....	217,775	18,346	20,029	23,843	25,543	26,924	103,090	6.5	
Families where all members belong to one nationality.....	210,523	17,589	19,032	22,713	24,582	26,059	100,548	6.5	
Of the above, families where all members are:									
Turkmen.....	186,596	15,405	16,675	19,985	21,993	23,297	89,241	6.5	
Russians.....	1,861	565	610	492	131	37	26	3.2	
Uzbeks.....	13,924	888	933	1,201	1,488	1,770	7,644	7.0	
Kazakhs.....	3,973	265	307	435	473	487	2,006	6.7	
Tatars.....	278	74	73	56	31	20	24	3.8	
Families where members belong to different nationalities.....	7,252	757	997	1,130	961	865	2,542	5.8	

	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Estonian SSR							
Urban and rural population							
All Families.....	394,425	144,795	121,672	90,845	26,984	6,917	3,212
Families where all members belong to one nationality.....							
Of the above, families where all members are:							
Estonians.....	235,180	95,087	64,852	51,946	16,796	4,433	2,066
Russians.....	86,848	29,423	31,964	19,619	4,477	975	390
Ukrainians.....	3,290	1,013	1,181	886	158	25	27
Belorussians.....	2,392	753	827	658	131	20	3
Families where members belong to different nationalities.....	62,197	16,358	21,605	16,968	5,225	1,387	654
Urban population							
All Families.....	278,224	96,437	91,960	66,687	17,542	3,992	1,606
Families where all members belong to one nationality.....							
Of the above, families where all members are:							
Estonians.....	137,874	52,980	40,955	32,240	8,913	2,024	762
Russians.....	80,265	26,982	29,777	18,203	4,092	871	340
Ukrainians.....	2,759	860	994	742	125	20	18
Belorussians.....	2,204	698	758	611	120	15	2
Families where members belong to different nationalities.....	51,764	13,347	18,516	14,293	4,153	1,013	442

	Number of Families	In Particular Families Consisting of The Following Living Together:					Average Size of the Family
		2 People	3 People	4 People	5 People	6 People	7 People
Rural population							
All Families.....	116,201	48,358	29,712	24,158	9,442	2,925	1,606
Families where all members belong to one nationality.....	105,768	45,347	26,623	21,483	8,370	2,551	1,394
Of the above, families where all members are:							
Estonians.....	97,306	42,107	23,897	19,706	7,883	2,409	1,304
Russians.....	6,583	2,441	2,187	1,416	385	104	50
Ukrainians.....	531	153	187	144	33	5	9
Belorussians.....	188	55	69	47	11	5	1
Families where members belong to different nationalities.....	10,433	3,011	3,089	2,675	1,072	374	212
							3.4

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